JUN 20 1960

FLIGHT

MAGAZINE

JUNE 1960
One Dollar

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ELEVENTH ANNUAL LOCAL AIR SERVICE ISSUE

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AIR Report
Significant Trends and News

FIRST PRODUCTION MODELS OF UMBAUGH AUTOGYRO being built under contract by Fairchild at Hagerstown were to be shown in June at a national press preview. Roy Coffman, president of Transwestern Copters of Houston, said the Umbaugh's price will be held to the originally-announced $9,995.

FOR THE FIRST TIME IN HISTORY the United States in June had a fully-equipped soaring team competing in the World's Championship Glider Meet at Cologne, Germany, thanks to a $4,000 donation from the National Aeronautic Association to the Soaring Society of America, as reported by Paul Schweizer, captain of the U. S. team.

MOONEY AIRCRAFT COMPANY has retained Fred M. Gore, well-known industrial designer, to design the interior and exterior of the new Mooney Mark 21. Norman Hoffman of Mooney said his firm is seeking "comfort and eye appeal heretofore undreamed of in the lightplane field."

NEW DIRECTIONAL CONTROL or spiral stability device will be marketed soon by Griswold Aeronautical Corp. Allan Heinsohn, formerly with Safe Flight Instrument Co., will head sales promotion of the device.

ROY T. HURLEY resigned last month as head of Curtiss-Wright Corp. "to devote attention to development of new products." He was succeeded as chairman by Attorney T. Roland Berner but no new president was immediately named. An executive committee was formed consisting of four directors in addition to Berner. They are Lloyd Smith, independent oil operator; Levin H. Campbell, Jr., former International Harvester executive vice president; James R. MacDonald, chairman and president of General Cable Corp., and Donald B. Power, chairman of General Telephone & Electronics Corp.

ROLLS-ROYCE DART TURBOPROP ENGINE had flown over 5 million hours in airline operation in North America as of last month. It was introduced in scheduled service in North America in 1956. Darts are operated worldwide and have accumulated a total of over 11 million flying hours. Time between overhauls varies among airlines but highest authorization is 2,700 hrs.

(Continued on page 109)

FLIGHT MAGAZINE

JUNE, 1960 VOL. 49, No. 6

THIS MONTH'S COVER pictures two different turboprop conversions of the Convair for local service airlines. Lake Central Airlines has ordered a fleet of Allison-powered prop-jet Convairs and Allegheny Airlines is adding more Napier Eland prop-jet Convair conversions after an impressive success with one Convair 540 prototype.

SPECIAL 11TH ANNUAL LOCAL AIR SERVICE SECTION

Progress Without Profits—LOCAL CARRIERS CONTINUE CHARTING GROWTH BUT RETURNS ARE INADEQUATE 47

Trends of Progress in Local Air Service—1945-59 GROWTH OUTLINED BY CHARTS 47

Problem: More Equity Capital—BY WAYNE D. BENNETT—CARRIERS CAN RAISE NEEDED FUNDS WITH PROFITABLE SHOWING 50

Total-Product Index of 13 Local Service Airlines—TABLE SHOWS INTERESTING RESULTS OF OPERATION FROM BEGINNING 50-51

Newer, Larger Planes Carry Growing Loads—LOCAL SERVICE PRODUCTIVITY BY TYPES OF AIRCRAFT 53

Allegheny Aims for Mass Markets—IMPRESSIVE SUCCESS WITH STREAMLINED COMMUTER HOPS FOR EASY BOARDING . . 54

Traffic Growth at 440 Stops—DETAILED ANALYSIS OF PASSENGER TRAFFIC AT ALL CITIES SERVED BY LOCALS 56

Statistical Analysis of Local Service Airline Operations for 1959—BY RAY AND RAY 61-62

Local Service Airline Schedule Pattern, May, 1960—STOPS AND SCHEDULES IN MAP FORM 63-64

Local Service Airline Schedule Pattern Operated with Equipment Larger Than DC-3, May, 1960—SCHEDULES OPERATED WITH FAIRCHILDS, MARTINS AND CONVAIRS 65-66

Maps Picture Growing Subsidy Requirements for Local Service 67-68

Your City's Role in CAB Cases—BY E. H. PICKERING—A HANDY GUIDE FOR EFFECTIVE COMMUNITY PARTICIPATION . . . 69

Selected Statistics Show 1958-59 Local Service Progress in Alaska, Hawaii and Caribbean Area 70-71

Local Service Airlines Directory—EXECUTIVES AND KEY PERSONNEL 76

REGULAR SECTION

Air Report—SIGNIFICANT TRENDS AND NEWS 7

Just Among Ourselves—EDITORIALS: CONGRESS SHOULD STUDY THE CIVIL AERONAUTICS BOARD; GRUMMAN'S LESSON IN FAITH AND COURAGE; THE FLIGHT THAT FAILED 17

323 Operators Flying 964 Helicopters—DISTRIBUTION OF COMMERCIAL HELICOPTERS IN U. S., ALASKA AND CANADA . . . 92

127 Copters in Corporate-Executive Fleet—EIGHTY-NINE FIRMS USE HELICOPTERS FOR LOCAL TRANSPORTATION 93

An Airport's Patronage Is Nationwide—THIS AIRPORT CHARTS TRANSIENT TRAFFIC FOR BETTER SERVICE 96

Airmen's Calendar—COMING EVENTS 106

New Business in the Hangar—NATIONWIDE ROUNDUP OF INTERESTING DEVELOPMENTS IN BUSINESS FLYING 116

GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager; LOUISE ROBERTSON, Circulation; E. H. PICKERING, Consultant; P. O. Box 750 (2700 N. Haskell Ave.), Dallas, Texas — Telephone TAylor 3-6191.

FLIGHT MAGAZINE, June, 1960, Vol. 49, No. 6. Published Monthly. Publication Office, P. O. Box 750 (2700 N. Haskell Ave.), Dallas, Texas. Price $1.00 single copy. Subscription rates: United States, one year, $3.00; two years, $5.00 three years, $6.00. Established February, 1934. Entered as second-class matter at the Post Office, Dallas, under the act of March 3, 1879.

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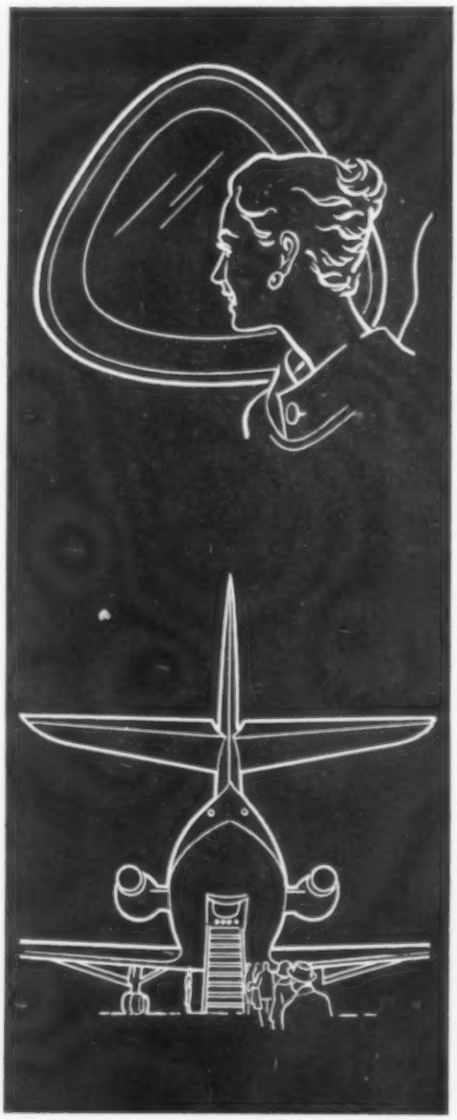

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Congress Should Study The Civil Aeronautics Board

ONE of the richest assets of a democratic state is the constitutional right and privilege to throw any department of the government completely open to public inspection with the single exception of operations dealing with secret information that affects our national survival. Even then the Congress has the power to investigate, without, of course, the kleig lights.

In this, FLIGHT MAGAZINE's eleventh annual study of short haul air transport, carefully prepared analytical and statistical material and maps detail many peculiar weaknesses stemming largely from Federal policies that control our air transportation systems, weaknesses that come largely from the inability of Federal agencies, through the slow processes of democratic government, to change policies and procedures as rapidly as technological and economic factors change.

Regulatory agencies are inherently inflexible, tend to become ingrown, suffer from lack of continuity of leadership at the top and, staffed with human beings, are sometimes subject to pressures not always in the public interest.

At this writing it appears many investigations are in the mill for various regulatory agencies, including the Civil Aeronautics Board. These threatened investigations do not imply any malfeasance by any of the agencies. They do reveal, however, a growing awareness in many quarters that the public interest is not being adequately served or protected by various independent regulatory agencies and that fundamental reorganization and modifications are required.

In the case of local air carriers, for example, it is apparent that increased subsidy requirements, brought about by expanding air services to smaller communities and the addition of larger aircraft to the carriers' fleets, are producing strong pressures in the Bureau of the Budget and in certain Congressional quarters for subsidy reduction. Here is a strange situation indeed; for the Civil Aeronautics Board and the Congress (the U. S. Government) are committed to provide air service to many communities of the nation over many local service routes that can not or do not originate enough passenger, mail or cargo to eliminate the need for subsidy. If local service was applied only to self-sustaining routes then there would be only token local airline service in a few so-called high-density areas.

Caught in the middle by opposing forces, the people who manage, operate, work for and invest in the local or short-haul air transportation business are beginning to wonder when, if ever, U. S. government policy will permit them to make a normal profit on their operations. There are very few unknowns or mysteries in the short haul transportation business. Most of the answers to most of the questions and problems of this line of endeavor are fairly well known. The locals rock along, year after year, expanding, setting new traffic records, doing a better job of selling, acquiring new routes, buying later model airplanes, experimenting with fares and schedules for the best possible service pattern, fighting spiralling costs of labor and materials, keeping hundreds of airports operating and journeying back and forth between home base and Washington trying to justify every move and expenditure they make. If they sell a $40 ticket in Oshkosh they usually get $5 and send $35 to the connecting trunk airline, with no commission on the sale. The mail rate section of the Civil Aeronautics Board, doing its job well, polices the expenditures of the locals through the power of expense disallowance, which power is forcefully applied and largely accounts for the poor profit showing of the industry. For this reason alone the hungry short haul operators would probably like to see an investigation commission or congressional committee empowered to study, evaluate and eventually revamp the Civil Aeronautics Board.

We agree with a CAB member who recently stated that "while the CAB is a popular and available scapegoat, it is not the repository of solutions of all aviation problems."

But it certainly does hold the big stick over the locals because, unlike the unsubsidized trunk lines, as long as they are dependent on subsidy the law requires the CAB to consider the "honesty, efficiency and economy" of management. The CAB is the main repository of the problems of local air service. Unless we get a long-range subsidy program, admit the subsidy is to the towns and not to the carrier, streamline and strengthen the CAB's staff work and permit the locals to make a profit and pay dividends, there doesn't seem to be a turning point anytime soon in the subsidy trend, which trend could eventually place most of the local service systems in jeopardy.

From the standpoint of the local service airline industry it therefore appears that an objective investigation of the Civil Aeronautics Board by a competent "Curtis" commission would prove beneficial — if not the salvation of the local service concept. This attitude favoring such an investigation in no wise reflects upon the character or ability of the CAB. It simply admits that the present way of doing business is not the answer to the establishment of an essential, sound and ultimately self-sufficient system of air service to small-town America.

Grumman's Lesson In Faith and Courage

IN the early 1950's when most manufacturers shied away from requests by corporate pilots for high-performance business aircraft capable of cruising 350 mph. and 2,000 miles, this magazine commented on the over-riding need for faith and courage to undertake the development of such business airplanes. While others dismissed the pilots and their desired aircraft design as an impractical "million-dollar dream" plane, one manufacturer listened carefully and went into action. This was Grumman Aircraft and last year Grumman began delivering the first million-dollar corporate transports on the market.

Now comes a statement from L. A.

Swirbul, president of Grumman, reporting his firm's first-quarter 1960 gross sales were up 20% over the same period last year while its net income was almost doubled for the period. Swirbul commented that "the improved first quarter is the result of completing write-off expenditures incurred in researching and developing Grumman's new corporate transport, the Gulfstream. In fact, Swirbul added, "the Gulfstream is now contributing to our sales and profits." He then repeated a prediction that Grumman "will do somewhat better in 1961 than it is doing in 1960." Primary reasons for this optimism, he said, are increased Gulfstream sales and an indication that larger corporations may order more than one Gulfstream (five customers have already placed orders for their second Grumman).

Gulfstream No. 42 was delivered last month in Dallas. We understand deliveries plus firm orders total over 50 Gulfstreams. These turbine-powered aircraft represent an investment of $1.1 to $1.3 million each to the customer. In other words, the corporate pilot's "dream plane" of less than 10 years ago has now become a $50 million business plum, thanks to L. A. Swirbul's foresight, faith and courage in corporate aviation's potential.

Swirbul says the Gulfstream is now contributing to Grumman profits, after 42 deliveries. We congratulate him for an outstanding achievement. And we are very much impressed by his statement that increased Gulfstream sales are a primary reason for Grumman's outlook for an even better year in 1961.

It is significant, we think, for a manufacturer primarily engaged in military aircraft production to rely for optimism on a corporate airplane for which no military sales have ever been indicated or required. We believe very strongly that those who deal primarily in corporate and business aviation should take a lesson in faith and courage from Grumman's success with the Gulfstream. It is unquestionably established as the first so-called "million-dollar airplane" to become a success on the non-military, non-airline market. It got that way chiefly because Grumman listened to the people who wanted such an airplane and then went ahead and developed what these people wanted instead of crying for underwriting of the project by commercial or military customers. Grumman has proved that there is still a profitable place in aviation for those who have enough faith in their ability to come up with a product worthy of customer acceptance. This should encourage other steps in advancing business flying.

The Flight That Failed

THE sensational U-2 spy plane incident revealed much more than the fumbling of both the flight operation itself and the furore it caused. It underscores the vital need for perfecting very advanced manned aircraft well within our technical capabilities.

In dispatching U-2 missions across 3,000 to 4,000 miles of hostile territory, the Central Intelligence Agency gambled against recognizable, well-established odds. From a mechanical performance standpoint alone, the mathematical chances for success were small for the single pilot in a single-engine aircraft committed to 6 to 9 hours of endurance at altitudes above 65,000 feet. Every one of many factors was critical and partial failure or malfunction in any one of them meant disaster—success demanded a combination of continuous engine power, electrical power, instrument operations, accurate navigation and maintenance of critically-high altitude and speed. Even without enemy interception, the lone pilot of a single-system aircraft like the U-2 could only rely on sheer luck in undertaking such a mission. Sure enough, the odds ran out even before he reached the halfway point and the gamble was lost.

The stakes are too high for America to gamble with anything but highly-perfected, dependable, top-performance aircraft and crews in this age of technical enlightenment and accomplishment. That the U-2 mess could happen at all is a shocking disclosure of American unpreparedness and unrealistic reliance on gambler's luck. The sorry truth is that the government has made a political football out of air defense necessities such as the perfection of superior aircraft capable of successfully completing their missions. If the U-2 fiasco is a measure of our aerial intelligence effectiveness, further embarrassment, disgrace and disaster will surely be forthcoming as we stumble out of one crisis into another.

By superior aircraft we refer to projects such as the Mach 3 generation represented by the B-70 project. This needed development has been handicapped and victimized by wholesale and unrealistic cutbacks, despite insistent pleas for its prompt completion. No less an authority than General

(Continued on page 123)

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9 FLIGHT\SWEEP CESSNA AIRPLANES—ONE FOR EVERY BUSINESS NEED

GM jet power for '60

Lake Central Airlines starts its second decade of service in the Great Lakes-Ohio River Valley area by taking a giant step into the jet age—ordering five Allison Prop-Jet Convairs for delivery starting in late summer, 1960.

Lake Central's Board of Directors has also taken an option on 10 additional Prop-Jet Convairs from General Motor's Allison Division—a move which promises continued improvement in passenger service for years to come.

When these 350-m.p.h. airliners enter service, Lake Central will offer its passengers the fastest scheduled local airline service in America.

The line's passengers will travel in planes which are far quieter, more vibration-free and more comfortable than any piston-powered airliners serving any other local carrier.

And they'll ride in fully pressurized, completely air-conditioned 52-passenger aircraft that will get them to their local destinations far sooner, far more rested and relaxed than ever before.

An airline is as good as its service to passengers—and Lake Central is making certain its service is the best.

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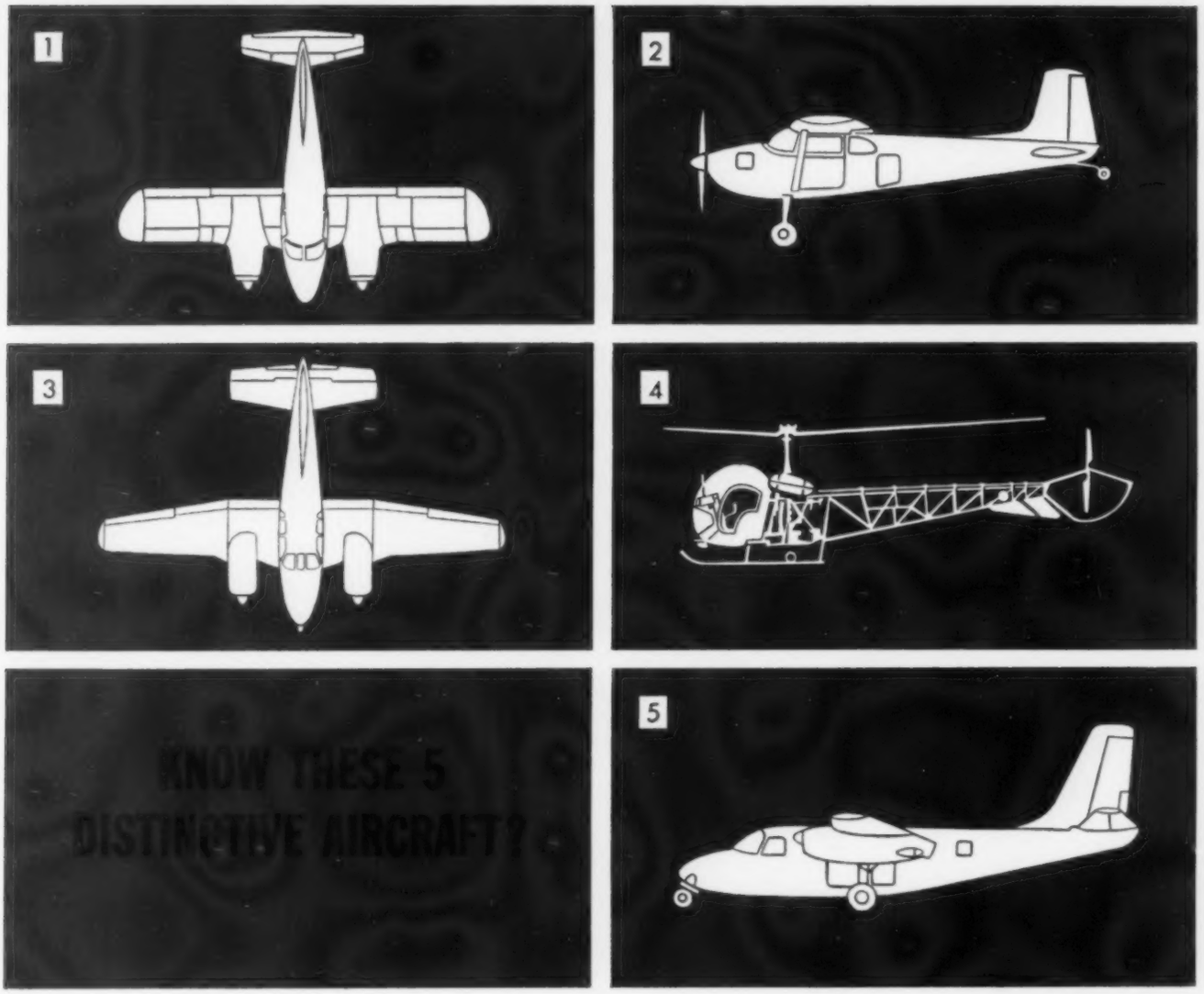
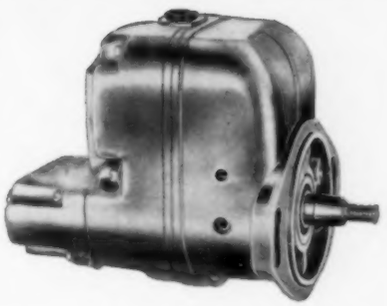


Although differing in appearance,
they all have one thing in common . . .

NEW BENDIX S-200 MAGNETOS



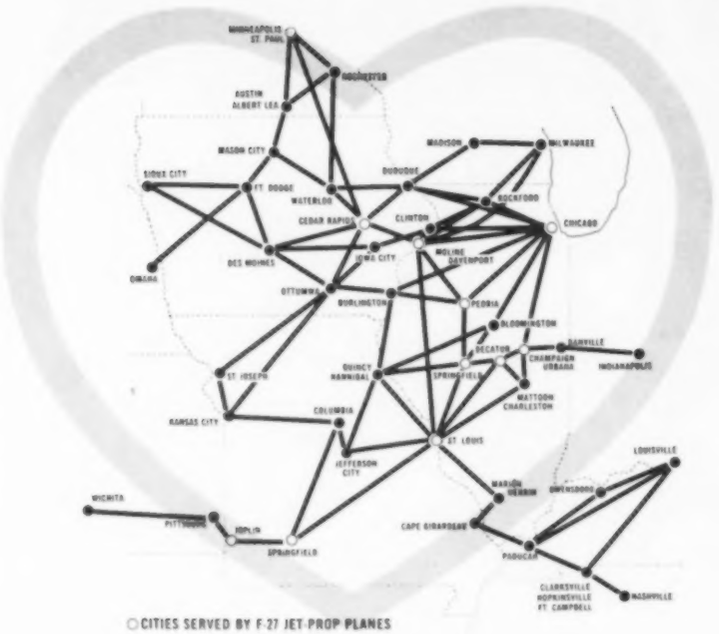
Here's a completely new, widely acclaimed ignition unit that provides superior performance and improved starting so necessary for today's 4- and 6-cylinder business aircraft.

In the Bendix® S-200 magneto, a great new design concept eliminates the mechanical impulse coupling. Replacing it, a retard breaker and battery-operated vibrator produce a "shower of sparks" at the spark plug through high voltage induction in the magneto's secondary. A combination ignition-starting switch automatically controls starting and operation of retard breaker, magneto and booster. The S-200 magneto is typical of Bendix capabilities in delivering superior ignition equipment, including magneto systems for aircraft of all types and sizes. Write today for complete information on the S-200 magneto or other ignition needs.

Pictured above: 1. Piper Aztec 2. Cessna 180 3. Beechcraft Twin Bonanza 4. Bell 47-G2 Helicopter 5. Aero Design—Model 500

Scintilla Division
SIDNEY, NEW YORK

THE Bendix CORPORATION



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The Big Look. The Fairchild F-27 is the propjet with the wide, wide view and the look and feel of comfort. Large panoramic windows that offer every passenger an "up front" seat. Air conditioning that functions as efficiently on sun-baked runways as it does high in the air. Pressurization that never varies no matter the altitude. This is the Fairchild F-27, propjet with the Big Look.

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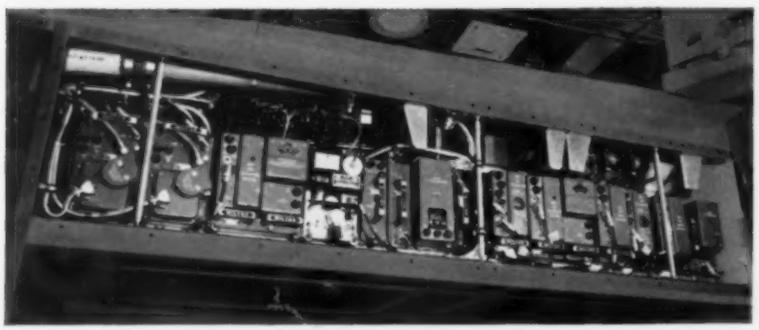

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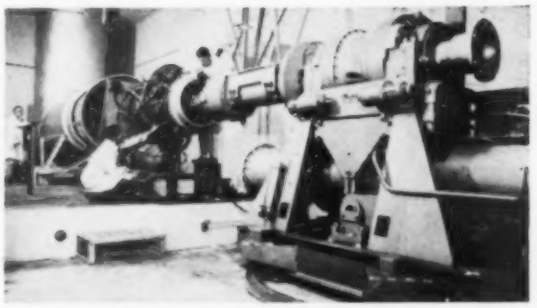

LAST STOP on PAC's turboprop overhaul line is this test cell—newest and most advanced in U.S.

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*Valued PAC customers include these 13 local service airlines: Alaska/Coastal, Aloha, Bonanza, Central, Frontier, Hawaiian, Lake Central, Northern Consolidated, Ozark, Pacific, Reeve Aleutian, West Coast, and Wien Alaska.

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Highlights of our greatest year of growth

North Central continues its leadership in the local airline industry, with 1959 our greatest year of growth.

1st in Passengers: for the fourth consecutive year, with a record 957,751 revenue passengers in 1959. They are expected to exceed a million in 1960.

1st in Air Mail and Express: North Central again leads the local airlines in mail volume. In June, 1959, North Central began air freight operations. By the end of 1959, 14,000,000 pounds of cargo were carried, including freight, air mail, express and expedited surface mail. Air freight volume alone was more than 2,000,000 pounds for the seven-month period.

Progressive and Continuing Route Development: North Central's route system has expanded to 5,366 route miles, serving 70 key cities in a nine-state area. In March, 1959, service was extended to the western chain of key cities — Minot, Devil's Lake and Bismarck-Mandan, North Dakota; Aberdeen, Huron, Mitchell, Rapid City, Pierre and Spearfish, South Dakota; and Mankato and Worthington, Minnesota. Appleton and Ashland, Wisconsin, were added to the route in July; and Fairmont, Minnesota, in December.

New service to Benton Harbor/St. Joseph, Michigan, from Grand Rapids and Chicago was put into operation on January 1, 1960.

Equipment: North Central made its third major equipment change in April, 1959, with the inauguration of service with Convair Super Northliners. These Convairs are radar equipped with pressurized cabins and 44-passenger capacity. The fleet now includes 37 aircraft — five Convair 340's and 32 Douglas DC-3's.

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And because it has power to fly above most foul weather, the Allison Prop-Jet Super Convair virtually eliminates delays and missed appointments.

FOR AIRLINES – Route analyses of several airlines reveal this jet-age plane will yield a 19% to 48% return on invested capital. Seating capacity ranges all the way up to 66 passengers.

Then, too, there's the added sales appeal of high-speed flying at low noise and vibration levels – giving your passengers the benefit and pleasure of modern jet-age transportation.

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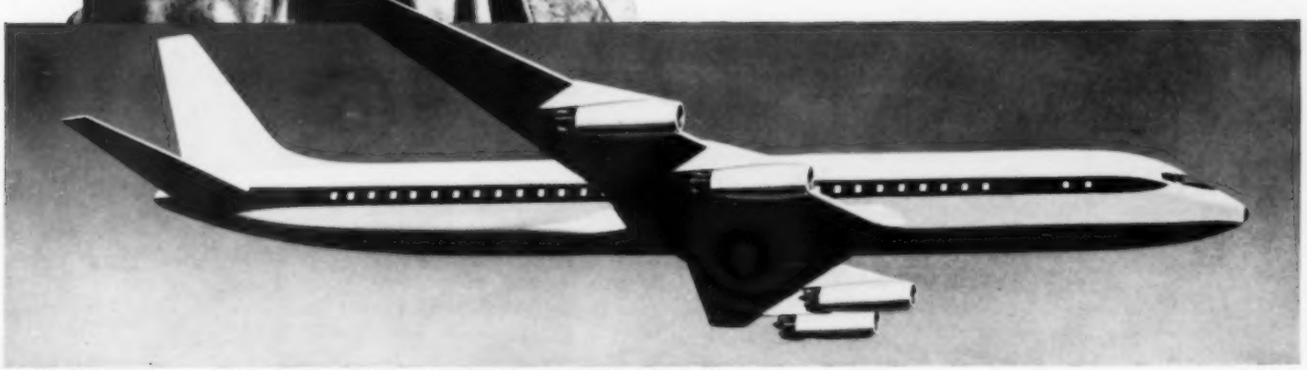
FROM
THE "JENNY"

TO THE JETS



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225 H.P.

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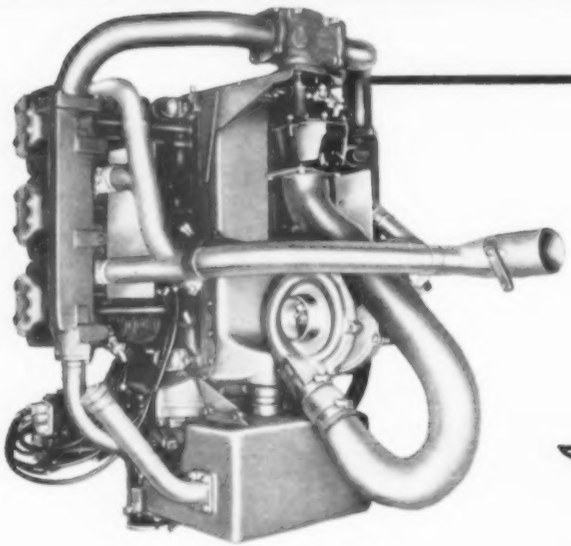

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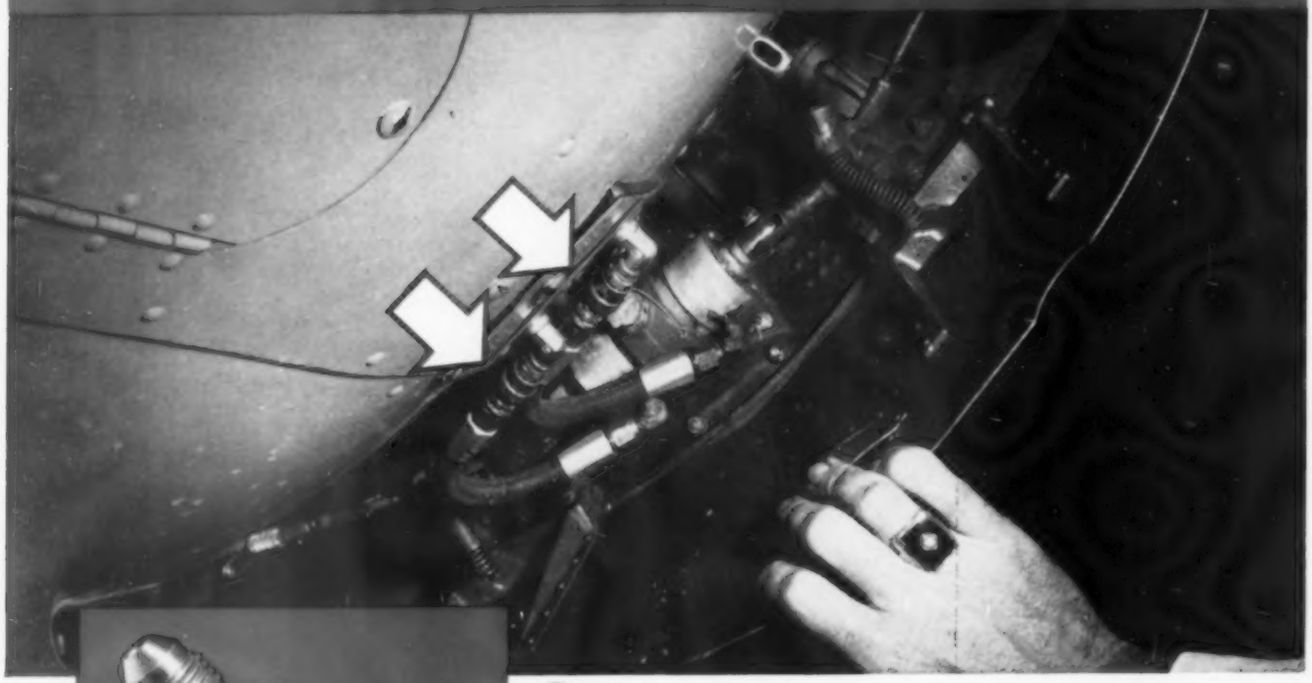
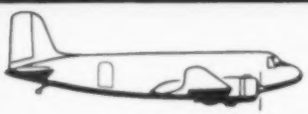
Modification of DC-3 Cowl Flap System Using Aeroquip Quick-Disconnect Couplings Cuts Maintenance Time

SAVES UP TO 20 MINUTES PER ENGINE . . . ELIMINATES FLUID LOSS



AEROQUIP 1010 MINIATURIZED COUPLING
(actual size)



You cut engine maintenance time on your DC-3 by using Aeroquip 1010 Series Quick-Disconnect Couplings on the cowl flap hydraulic lines. Lines can be disconnected in seconds without fluid loss, saving up to twenty minutes when removing each engine cowling. There is no need to close the selector valve or cap the hose ends. Equip your DC-3 with these maintenance time-savers.

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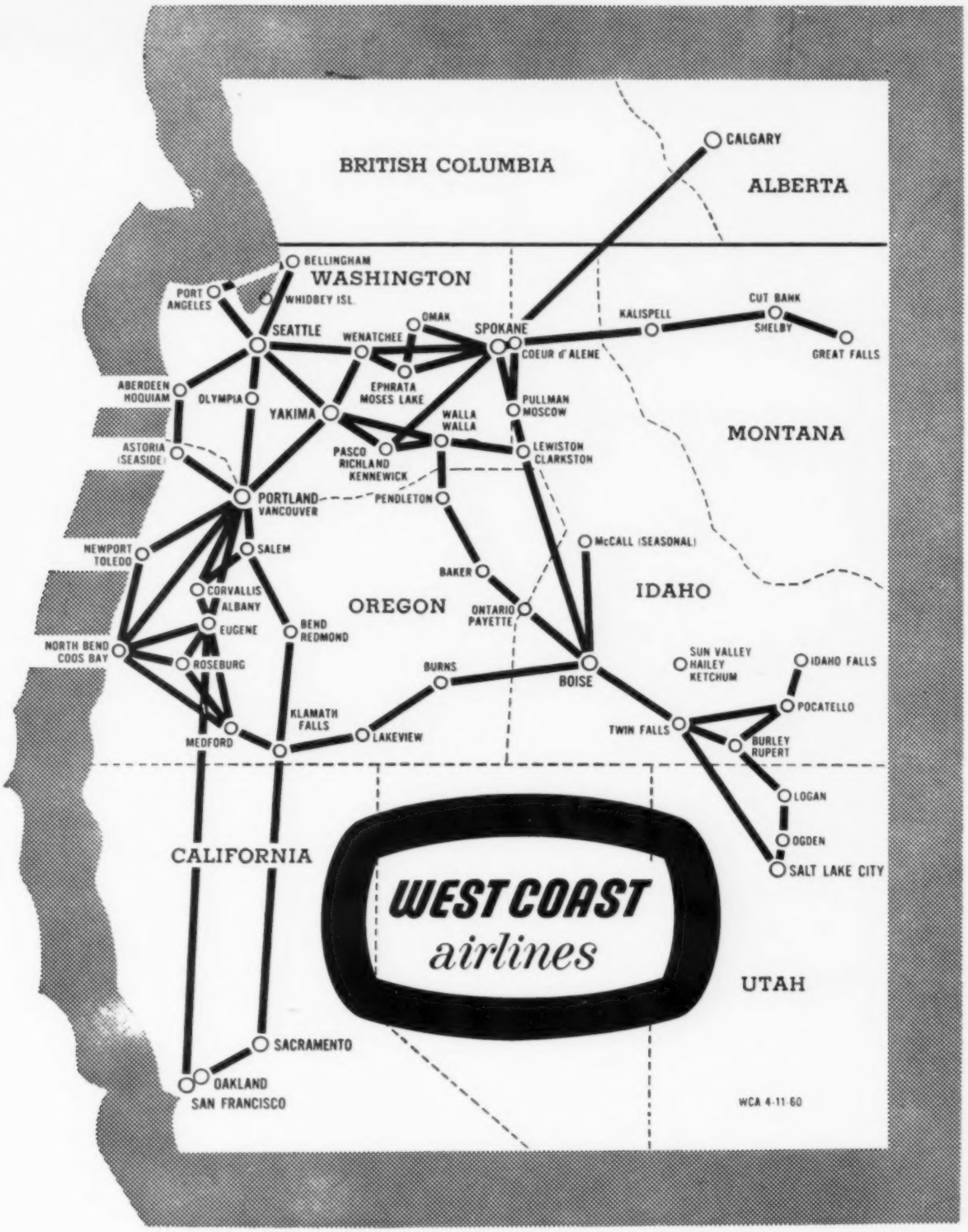

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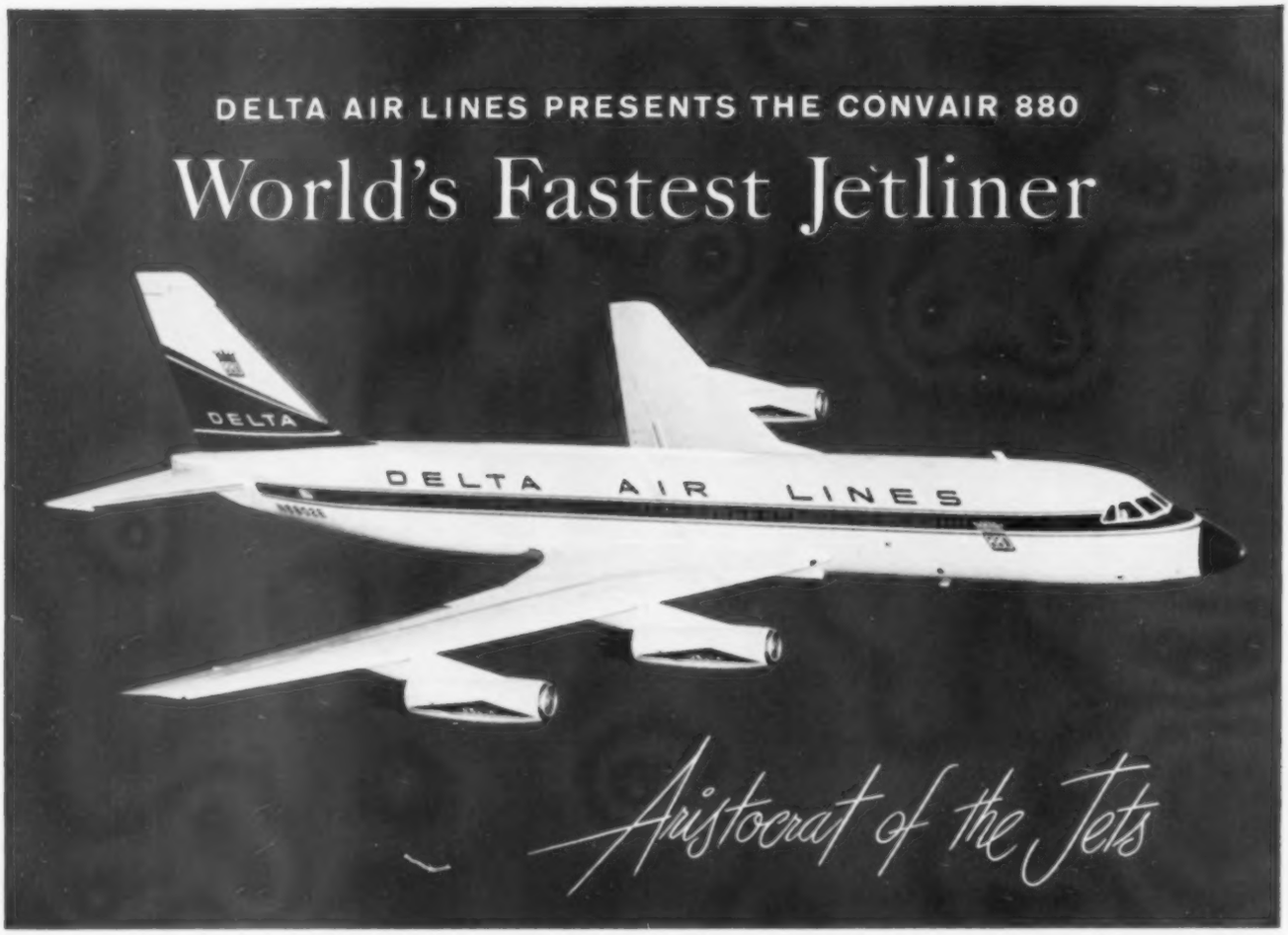

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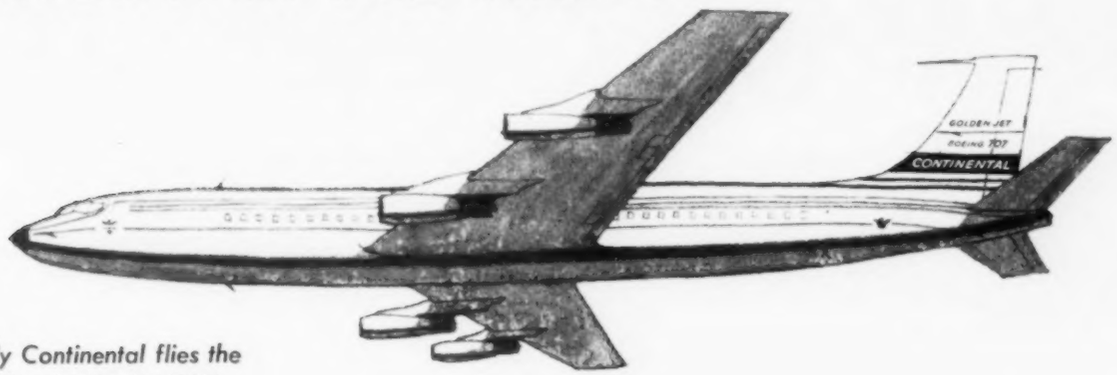

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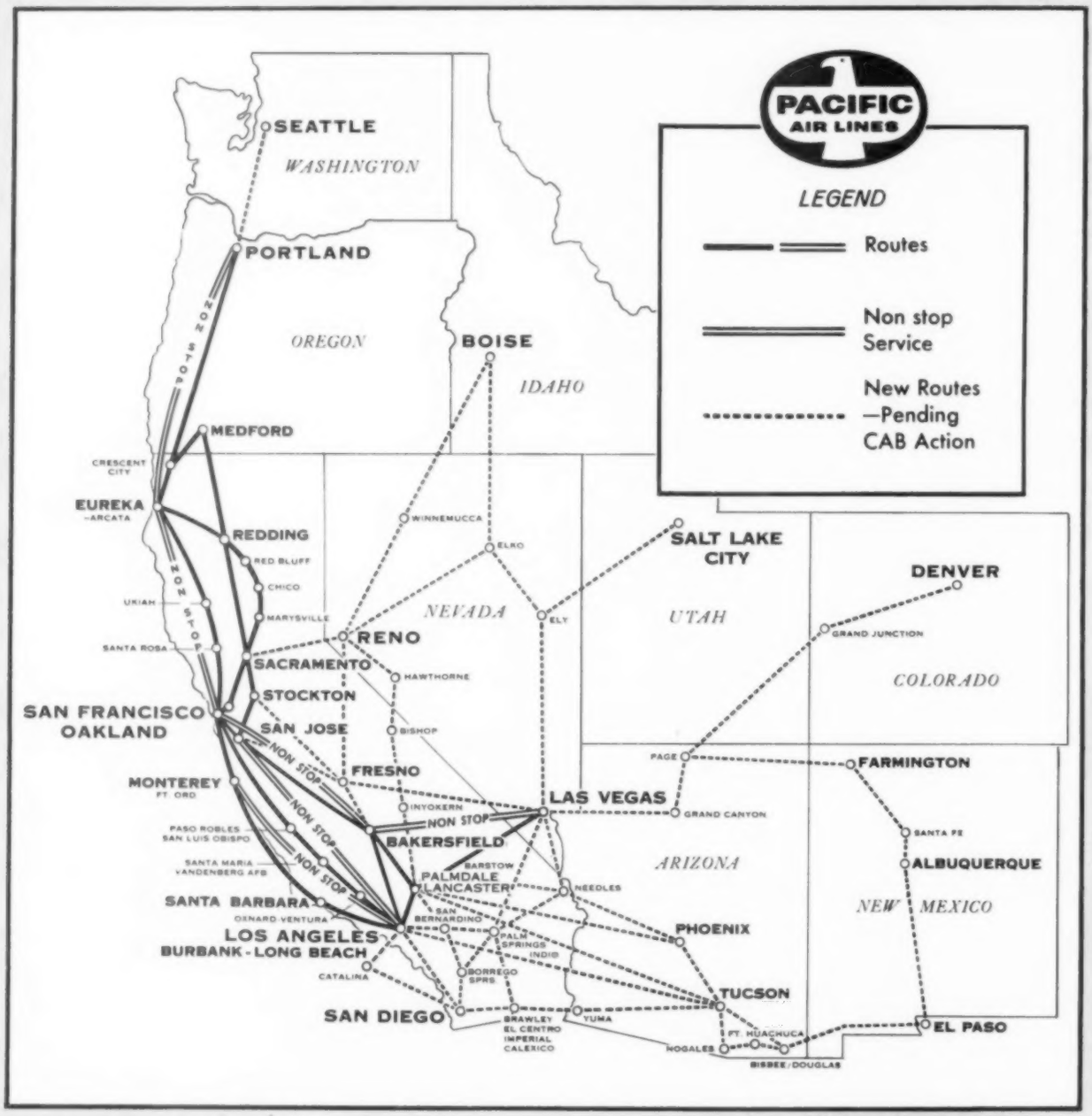

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FAIRCHILD F-27

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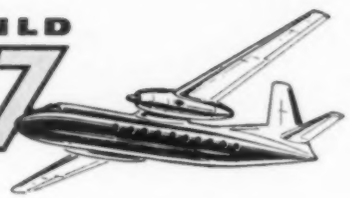

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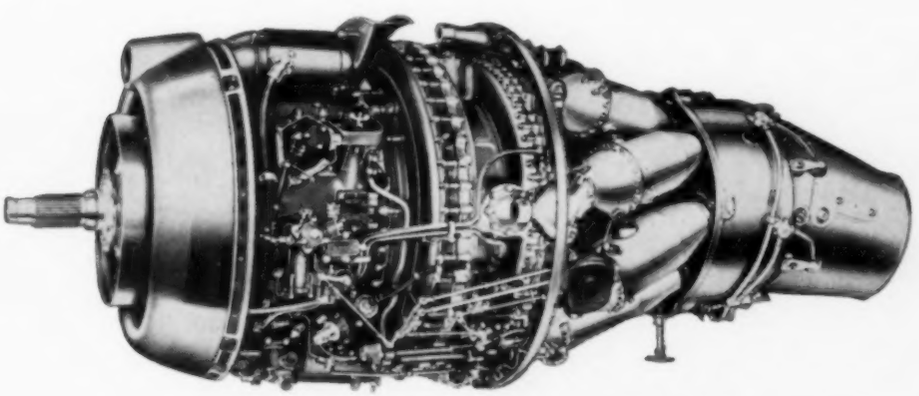

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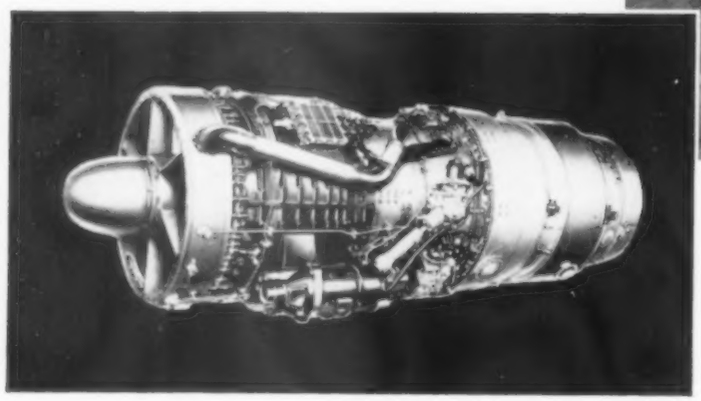

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Progress Without Profits

THE old adage often applied to U. S. local service airline operations, "Promise, Progress and Performance — Without Profit" certainly holds true at this writing.

The local carriers, although harried by inconsistencies within government policy and severely handicapped by a paucity of equity capital, continued to chalk up new traffic and income gains during 1959. For the first time in their interesting history they broke through the billion revenue-passenger-mile mark, hauling 5,649,324 paying passengers as compared with 4,583,656 in 1958. Corresponding gains were made in air mail poundage, freight and express. In fact, the year of 1959 showed the largest percentage growth over a preceding year since 1950.

The carriers continued to add newer, larger and faster aircraft to their fleets, they expanded their services into 59 additional towns and their subsidy bill was in the neighborhood of $42 million. With five more major "area" service cases yet to be decided by the Civil Aeronautics Board, the prospects are for even more route expansion for service to more towns requiring more aircraft.

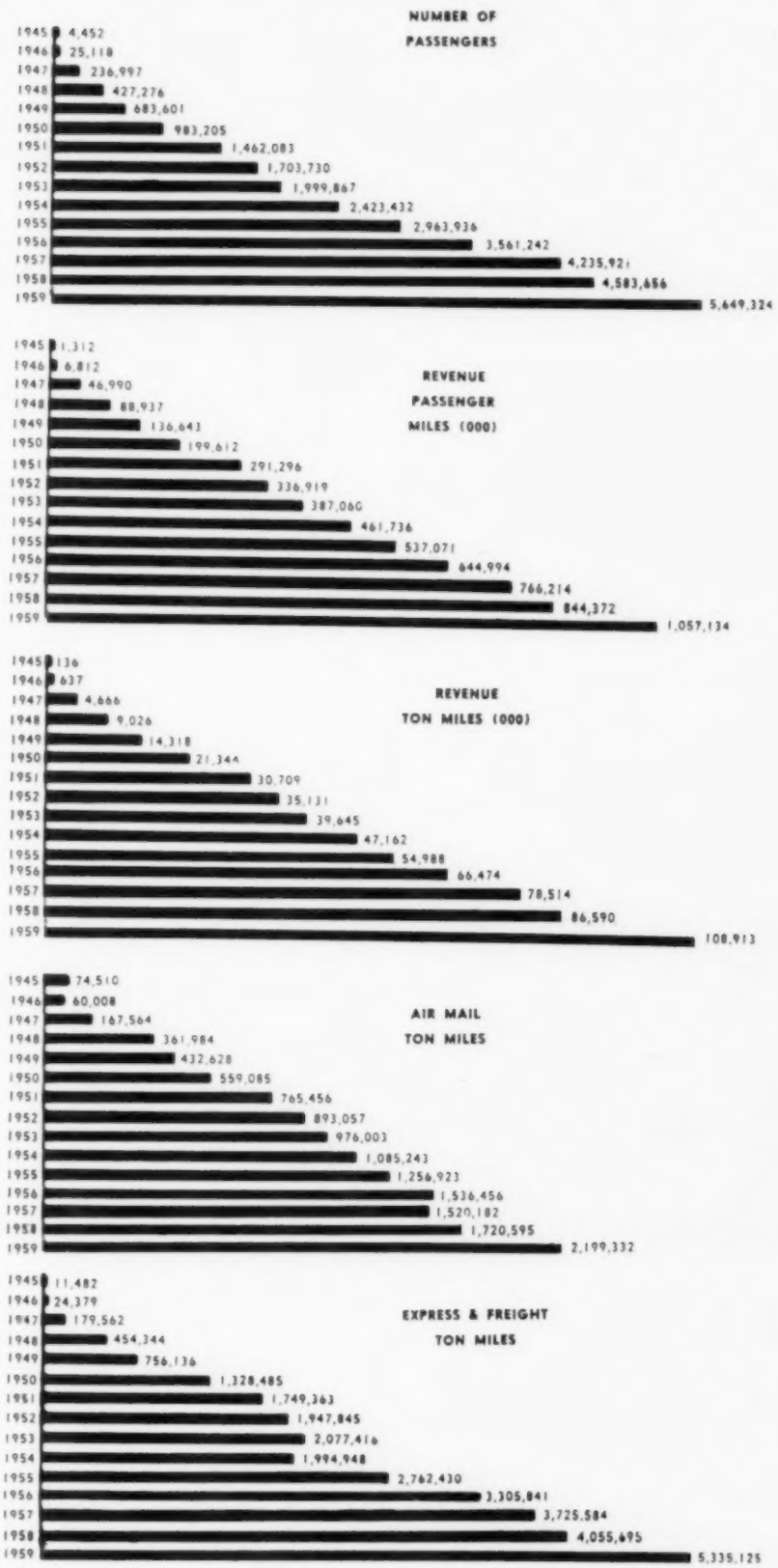
Small-town America is finally getting air service. The monopoly of ten years ago that dictated only the larger cities would have scheduled airline service has finally been broken.

Surely the jet age has helped to accelerate this development of local air service. More and more trunk stops are going to the locals, with trunkline and community blessings, as the longer haul business becomes the profitable, non-subsidized heart of the trunks. Many communities that fought the dropping of trunk service in the past have now found they can be served better by the locals.

Yet, despite all the progress so evident from the statistical summaries in this annual study, the local air lines continue to skate on thin financial ice all because the system that keeps them going simply won't let them earn a profit for dividends and capital reserves.

Laymen naturally wonder how such a system operates — the strange spectacle of a burgeoning, expanding transportation system, regulated by an agency that supposedly allows a 9.5 per cent return on invested capital. What laymen don't know is that the power of the mail rate section of the CAB to make disallowances of so many items of expense the 9.5 per cent earnings formula is whittled away to a few crumbs off the table. To expand,

Trends of Progress in Local Air Service
1945-1959



the carriers either sell more stock or borrow funds. But it's hard to sell stock when the earnings record of the past ten or twelve years is zero, with no promise of the situation changing. Interest paid on borrowed funds is allowed as an expense so the trend is more toward loans than to capital investment.

The irony of this situation was demonstrated in April when a House Committee Report on the Independent Offices Appropriation Bill came out with the following:

"An appropriation of $60 million is recommended for payment of subsidies to local air carriers. This is an increase of $1,500,000 over 1960 and a reduction of $8,984,000 in the budget estimate. During the hearings the committee expressed its concern to the Board that it is not auditing subsidy payments on a current basis, but makes monthly payments, and audits the accounts only annually. It is also suggested that the Board examine its policies to be assured that carriers receiving subsidies are not encouraged to raise borrowed instead of equity capital by receiving a subsidy on their borrowed money."

One thing is clear: The authors of the above report apparently never heard of the CAB's mail rate section or became familiar with its tremendous power over the local carriers' balance sheets. The irony is even more sharply drawn when one considers the real reasons behind the mounting subsidy bill, now in the area of $60 million annually.

The same congressmen who complain about subsidy are the same ones who yell for local airline expansion into communities within their constituency. They vote for government guaranteed loan bills so the locals can buy new aircraft, which up the annual subsidy bill, and in the next breath write nasty notes about increased subsidies. If the service into marginal towns fails to meet the minimum standards of traffic generated under the CAB's "use it or lose it" formula, they bring pressure to bear to keep the service going despite the failure of some towns to produce adequate patronage.

It is the recent expansion of local air line routes that has upped local service subsidy requirements. New equipment has been a factor, too. They are the same elements that helped swell the traffic figures to an all time high — carry more people in and out of more towns in larger and better airplanes and you get a better service, which in turn costs more subsidy dollars.

The only thing wrong with this picture is the people who do the work don't make any money. The mail rate section of the Civil Aeronautics Board won't let them — it's their job to sharpen the pencil and try to reduce payments to the carriers. They are doing their job well and through the neat power of disallowance of various expenses, the 9.5 per cent permissible return on invested capital becomes a myth.

Competent students of local air service figure that more than half of the increased subsidy is probably due to the recently expanded route structures. The rest of the increase can be attributed to the progressive and very desirable change to larger equipment for some but not all routes.

Back in 1952-1953, this change to larger equipment got off on the wrong foot in the Pioneer Airline Case when Pioneer attempted to replace some DC-3's with Martin 202's. Many factors not related to the merits of the change to more modern equipment unfortunately were involved in the case and the situation deteriorated so rapidly the Board refused to pay for the service and Pioneer was forced to merge with Continental. As a result of this fiasco the Board got itself into a precedent-making position of not allowing any improvement or modernization as long as it would be accompanied by increased subsidy costs.

Nine of the thirteen carriers have started replacing their DC-3 equipment with F-27's, Convairs and Martins. Despite the fact there are 52 Convairs and Martins and 31 turbine-powered airplanes in the fleets with 24 more on order, the locals are still operating 222 DC-3's. So the DC-3 is still the backbone of the local carrier fleet. Nevertheless, a substantial part of the increased subsidy bill is for the new and larger aircraft. But this is as it should be for as long as the government is going to pay a part of providing air service to the general public, it might as well provide modern air service which means faster and more modern aircraft of the type that are capable of eventual subsidy-free operation. Competent students of local service believe that the increased subsidy for the better aircraft means lower costs in the future. But the more modern airplanes now being integrated are not adaptable to all local service routes. The old DC-3 workhorse actually has no replacement on certain

Local Service Airline Revenues and Expenses
Years 1945 through 1959
Cents Per Revenue Mile

Year	Revenues: Passenger	Revenues: Total Non-Mail	Revenues: Mail Pay	Revenues: Total	Total Expense	Break Even Need
1945	20.82	21.20	25.06	46.26	73.14	51.94
1946	24.43	27.09	56.54	83.63	93.43	66.34
1947	27.29	29.55	69.37	98.92	95.48	65.93
1948	28.57	30.58	56.37	86.95	88.81	58.23
1949	30.38	32.53	54.25	86.78	89.04	56.51
1950	30.39	33.95	46.92	80.87	80.80	46.85
1951	41.69	45.87	49.13	95.00	92.67	46.80
1952	47.11	50.56	50.62	101.18	140.45	53.89
1953	50.27	53.97	53.57	107.54	110.50	56.53
1954	57.12	61.56	51.38	112.94	109.61	48.05
1955	63.40	68.23	42.27	110.50	109.72	41.49
1956	66.36	71.69	40.18	111.87	112.90	41.21
1957	69.33	74.91	45.08	119.99	121.10	46.19
1958	76.80	82.72	46.57	129.29	126.89	44.17
1959	83.87	90.67	50.27	140.94	140.08	49.41

—(Ray & Ray Compilation)

Local Service Airlines Selected Route Pattern Data
As of December 1959

Carrier	Population Served (1959) (000)	Number of Cities Served: Total	Number of Cities Served: Exclusive Local Service	Number of Cities Served: % of Total Exclusive	Route Miles	Average Segment Length
Allegheny	18,523.9	47	19	40.4	2,143	63.0
Bonanza	3,989.3	30	20	66.7	2,181	87.2
Central	5,278.7	39	18	46.2	3,737	84.9
Frontier	3,417.4	81	61	75.3	6,692	84.7
Lake Central	12,127.4	41	18	43.9	2,175	62.1
Mohawk	12,345.6	36	6	16.7	2,428	83.7
North Central	10,348.1	76	47	61.8	5,535	73.8
Ozark	11,149.6	59	27	45.8	4,970	82.8
Pacific	5,227.9	40	20	50.0	2,090	74.6
Piedmont	5,049.2	55	14	25.5	2,752	72.4
Southern	3,940.6	38	18	47.4	3,179	79.5
Trans-Texas	6,148.4	50	26	52.0	4,795	88.8
West Coast	3,956.3	64	43	67.2	3,791	77.4
Total (unduplicated)	58,350.8	564	328	58.2	45,718	79.1

—(Ray & Ray Compilation)

routes, especially those in the marginal traffic category.

There are five more major area cases to be decided by the CAB. If and when the decisions come down, the new routes will require additions to the fleets. Is there any doubt that more DC-3's will be added to the 222 now in local service? Perhaps conversions of the DC-3 both inside the cabin and out might be economically feasible and reduce the talk we've heard for twenty years that it's an obsolete airplane. There simply isn't a 20 to 28-place airplane of modern design in the U. S. at a figure commensurate with original and operating costs of the DC-3. Until such an airplane comes along we'll never have more than partial integration of faster, larger and more modern aircraft into local service.

The major trouble with the new airplanes now being brought into local carrier operation is that of size. Only certain selected routes have a high enough traffic potential to justify them. Scheduling this equipment cuts frequency, which is one of the most basic assets of true local service.

The local carriers' chief competition, the private automobile, provides optimum convenience and flexibility. A passenger will use his car for travel up to a couple of hundred miles unless the air schedules offered can provide him with arrivals and departures at the time he wants to travel. Using larger airplanes makes it doubly difficult to provide such schedules and they tend therefore to increase the pressure on airline management to become regional "trunk" operators, constantly hoping the jet age of the true trunk lines will drop more substantial towns with heavier traffic flows into their laps.

A check into the loads actually being carried by some of the locals reveals some surprisingly light figures on a surprising number of flights. A traffic study of one of the most successful local carriers shows that some 54 per cent of its total flights carried twelve passengers or less, with 22 per cent running less than 8 passengers as their average load for last September. On a flight segment basis (hops between adjoining points) over 60 per cent of them averaged twelve passengers or less for the same month and 33 per cent averaged less than eight passengers per flight.

These load factors are for the local carrier that leads the group trafficwise and are for one of this carrier's best months. They include the flights scheduled with the company's five Convairs. They certainly do not indicate a desperate need for a 40-place or larger airplane. So for some time to come an airplane carrying around 20 to 25 seats will be large enough to handle at least two-thirds of the local service flying if local service patterns remain about the same as today. Such an airplane is not in sight. If it were, what would it cost and could the carriers get the capital to buy it? Local air service is ostensibly tied with hooks of steel to compromise aircraft and the diversity of routes and public service requirements certainly points to a diversity of aircraft types for years to come.

The continuing effort of the local carriers to get their operating restric-

(Continued on page 60)

Local Service Airline Growth, Operations
Years 1945 through 1959

Year	Revenue Miles	Revenue Passengers	Revenue Passenger Miles (000)	Passenger Load Factor (%)	Revenue Ton Miles (000)	Ton Mile Util. Factor (%)
1945	310,783	4,452	1,312	52.76	136	42.50
1946	1,287,971	25,118	6,812	37.92	637	41.35
1947	8,354,787	236,997	46,990	30.08	4,666	31.93
1948	16,335,284	427,276	88,937	27.35	9,026	29.01
1949	24,208,377	683,601	136,643	28.51	14,318	30.90
1950	33,552,214	983,205	199,612	33.02	21,344	30.90
1951	37,797,136	1,462,083	291,296	38.20	30,709	35.30
1952	40,697,348	1,703,730	336,919	38.64	35,131	35.69
1953	45,085,915	1,999,867	387,060	39.47	39,645	35.67
1954	48,447,951	2,423,432	461,736	44.59	47,162	40.00
1955	51,802,611	2,963,936	537,017	47.99	54,988	43.26
1956	60,529,316	3,516,242	644,994	48.34	66,474	44.04
1957	68,458,103	4,235,921	766,214	49.87	78,514	45.33
1958	73,555,127	4,583,656	844,372	50.54	86,590	46.09
1959	87,146,670	5,649,324	1,057,134	44.88	108,912	45.67

—(Ray & Ray Compilation)

Local Service Airline Growth, Revenues
Years 1945 through 1959

Year	Passenger Amount	Passenger % of Total	Total Non-Mail Amount	Total Non-Mail % of Total	Mail Pay Amount	Mail Pay % of Total
1945	$ 64,701	45.0	$ 65,874	45.8	$ 77,890	54.2
1946	314,638	29.2	348,903	32.4	728,179	67.6
1947	2,280,124	27.6	2,468,397	29.9	5,795,932	70.1
1948	4,666,549	32.9	4,996,550	35.2	9,207,621	64.8
1949	7,355,366	35.0	7,876,031	37.5	13,132,690	62.5
1950	10,196,781	37.6	11,393,129	42.0	15,741,612	58.0
1951	15,757,568	43.9	17,338,545	48.3	18,569,578	51.7
1952	19,172,025	46.6	20,573,899	50.0	20,602,272	50.0
1953	22,663,146	46.7	24,333,992	50.2	24,153,000	49.8
1954	27,673,195	50.6	29,821,463	54.5	24,893,753	45.5
1955	32,840,504	57.4	35,342,823	61.7	21,898,850	38.3
1956	40,165,958	59.3	43,392,973	64.1	24,318,037	35.9
1957	47,464,945	57.8	51,278,631	62.4	30,861,311	37.6
1958	56,488,809	59.4	60,843,354	64.0	34,257,693	36.0
1959	73,089,381	59.5	79,015,817	64.3	43,806,384	35.7

—(Ray & Ray Compilation)

Local Service Airlines Operating Expenses
Years 1945 through 1959

Year	Direct Aircraft Expense: Flying Operations	Maintenance—Flight Equip.	Depreciation—Flight Equip.	Total	Ground and Indirect Expense	Total Expense
1945	$ 56,415	$ 37,137	$ 16,517	$ 110,071	$ 117,222	$ 227,293
1946	268,304	187,430	107,600	563,334	640,040	1,203,374
1947	1,883,686	1,115,027	854,848	3,853,561	4,123,983	7,977,544
1948	4,134,962	2,072,832	1,303,563	7,511,357	6,995,512	14,506,869
1949	6,280,727	3,147,538	1,910,785	11,339,050	10,216,991	21,556,041
1950	8,422,726	3,463,246	1,492,366	13,378,338	13,731,864	27,110,202
1951	10,678,202	4,211,381	1,596,032	16,485,615	18,541,338	35,026,953
1952	13,116,658	5,351,865	2,070,486	20,539,009	21,970,066	42,509,075
1953	15,430,335	6,354,124	2,422,092	24,206,551	25,614,810	49,821,361
1954	17,246,089	5,950,087	1,893,201	25,089,377	28,016,163	53,105,540
1955	18,077,016	6,619,511	1,811,914	26,508,441	30,329,525	56,837,966
1956	21,615,379	8,284,666	2,090,057	31,990,102	36,349,167	68,339,269
1957	26,509,789	10,908,338	2,836,411	40,254,538	42,645,677	82,900,215
1958	29,268,007	11,869,477	3,380,842	44,518,326	48,812,539	93,330,865
1959	36,828,346	16,332,772	5,304,904	58,466,022	63,612,000	122,078,022

—(Ray & Ray Compilation)

Total-Product Index of 13

An Exclusive FLIGHT

	Date of First Operations	Cumulative Months of Service	Cumulative Revenue Aircraft Miles Operated	Cumulative Revenue Seat Miles Flown	Cumulative Revenue Passengers Carried
Allegheny	3/7/49	128	48,805,257	1,175,095,768	3,381,372
Bonanza	12/19/49	120	23,836,611	566,588,753	1,042,983
Central	9/15/49	123½	25,565,187	496,308,000	814,198
Frontier	11/27/46	157	60,714,072	1,264,052,000	1,854,000
Lake Central	11/12/49	121½	20,752,000	425,845,000	1,028,355
Mohawk	9/19/48	135½	35,482,000	1,016,371,000	2,796,000
North Central	2/24/48	142	67,479,385	1,464,626,000	4,239,271
Ozark	9/26/50	111	41,308,963	1,026,452,425	2,364,095
Pacific	2/2/46	167	40,571,597	1,043,329,000	2,662,498
Piedmont	9/20/48	134½	66,430,693	1,453,522,198	3,417,781
Southern	6/10/49	126½	34,866,034	787,412,000	1,577,588
Trans-Texas	10/11/47	146½	52,044,000	1,123,270,000	1,673,350
West Coast	12/5/46	157	41,338,511	392,986,465	2,198,286
Industry Total		1,770 (147½ yrs.)	556,194,310	12,235,858,609	28,140,777

Problem: More Equity Capital

By WAYNE D. BENNETT
Vice Pres., Dallas Rupe & Son, Inc.

(EDITOR'S NOTE: Dallas Rupe & Son, an investment banking firm of Dallas, has been active for many years in airline financing and, in recent years, has handled financing for several local service airlines.)

THE biggest single problem facing the local service airline industry today is financing.

Investment banking institutions can readily produce the dollars necessary for the orderly development of local air service, but only if there is a fundamental change in Federal policy which must sooner or later permit the local service carriers to operate as conventional business enterprises similar to most other industries whose debt securities and equity securities find ready acceptance among investors.

Let's consider the situation facing the 13 major local service carriers which started operations between 1946 and 1950. As of December 31, 1959, their individual net worth figures ranged from a low of $330,374 to $2,007,881, for a combined net worth total of $15,487,241. Even if we knew the amounts of unpaid subsidy accrued at the time it would still be a comparatively small figure. The relative smallness is seen in its comparison to the stockholder equity in two trunk lines at the same date: Braniff International Airways, Inc., $36,861,054, and the largest of all, American Airlines, Inc., $150,231,702. Last September total stockholder equity investment for the entire airline industry was about $960,000,000. So the present investment in the 13 domestic local carriers is less than two per cent of the total.

The exceedingly-rapid growth pattern of the local air lines as depicted in this special study certainly proves that the industry has immediate demands for financing required to buy additional airplanes and to provide working capital to care for an additional 10 to 20 per cent annual growth. The Civil Aeronautics Board has recognized the need for "re-equipment with more modern aircraft, since it appears that without such equipment no reduction in the dependence of these carriers on government support could be anticipated." Rising costs of operations make it impossible for the DC-3 to make a profit even when operated at near 100 per cent load factor. The air-conditioned automobile and the Federal highway program offer strong competition to the old, slow, non-airconditioned and non-pressurized airplane.

In our opinion, present conditions amply warrant the immediate replacement of one-third of the 222 DC-3's in operation last December on local service airlines, and the purchase of 74 new F-27 aircraft, or their equivalent.

Financing required would be about

Local Service Airlines

MAGAZINE Compilation

Equity Capital at Time of Beginning Operations	Equity Capital as of Dec. 31, 1959	Net Worth as of Dec. 31, 1959	Aircraft Owned on Date of First Operations	Aircraft Owned as of Dec. 31, 1959	Aircraft Leased as of Dec. 31, 1959	Aircraft on Order as of Dec. 31, 1959
$1,587,860	$ 1,296,993	$ 1,113,457	6 DC-3	10 DC-3 12 M202 7 CV 440	2 CV 540	5 CV 540 4 CV 440
73,400	2,072,683	1,919,490	1 DC-3 Leased	10 DC-3 6 F-27A	—	4 F-27A
25,000	684,737	448,696	6 A-35 Beech	12 DC-3	3 DC-3	—
392,374	1,493,080	1,298,020	5 DC-3	24 DC-3 5 CV 340	1 DC-3	—
156,085	531,755	454,066	2 DC-3	10 DC-3	2 DC-3	15 Super Convair
278,833	3,066,111	1,148,611	2 DC-3	8 DC-3 7 CV 240 5 CV 440	—	—
620,000	1,317,720	1,476,482	2 Lockheed 10A	23 DC-3 5 CV 340	9 DC-3	—
749,498	1,032,004	1,189,854	4 DC-3	21 DC-3 3 F-27	3 DC-3	—
27,000	582,029	1,843,871	9 DC-3	8 DC-3 7 M202 6 F-27	4 M404	—
531,000	1,313,712	2,007,881	2 DC-3 1 DC-3 Leased	17 DC-3 8 F-27	—	—
501,700	870,372	1,010,154	2 DC-3	22 DC-3	—	—
775,000	950,000	1,246,285	2 DC-3	23 DC-3	2 DC-3	—
62,372	1,156,658	330,374	3 DC-3	14 DC-3 6 F-27	—	—
$5,780,122	$16,367,854	$15,487,241	37 DC-3 2 DC-3 Leased 2 Lockheed 10A 6 A35 Beech	202 DC-3 19 M202 7 CV 240 10 CV 340 12 CV 440 29 F-27	20 DC-3 4 M404 2 CV 540	4 CV 440 5 CV 540 15 Super Convair 4 F-27

$83,250,000, to be raised from the sale of debt securities and by the injection of additional equity capital. Once this initial financing is accomplished, it is reasonable to assume that between 15 and 30 new aircraft would have to be purchased each year thereafter to meet the normal requirements of growth and replacement. Thus the continuing annual requirement for new money would be some $16,875,000 to $33,750,000.

Exhaustive studies of each airline would be needed to determine each company's portion of the total expansion. But any one of the 13 airlines today planning the purchase of, let us say, four F-27's, faces an outlay of $4,500,000, aside from working capital that may also be needed. Our average airline has a net worth of approximately $1,000,000, and therefore must secure funds totaling 4½ times its present net worth. If it is one of the smaller lines, the $4.5 million may be eight or nine times present net worth.

The investment banker must coordinate a program of debt and equity to fit the situation. A ratio of 25% equity-75% debt may be justified. On this basis, the equity position for our average airline would have to be increased from $1,000,000 to $1,375,000, and long term debt probably maturing over a 10-year period amounting to $4,125,000. For the smaller airlines, the equity financing may run as high as $1,000,000, to bring about the proper proportions.

The sums are not large, in comparison with the requirements of other industries. Hundreds of similar and larger loans are made each month, and equity financing of this size is routine.

What is the situation facing the airline seeking this money? The nation is experiencing a period of tight money and the lender is more selective in making his loans. The lending agencies' funds may go into government bonds of five years maturity bearing five per cent interest, requiring no supervision, and as safe as the country itself. Or into prime real estate first mortgages, secured by well-located properties with top-rated tenants, at interest rates starting at 6 per cent. Or into convertible debentures with substantial companies, where principal and interest payments are adequately protected, and the lender has the added profit potential offered by the conversion privilege.

Why should the lender choose instead to invest in debt securities of a local service airline? The investment banker has in the past argued successfully that this is a growing industry. Each airline in the group has permanently certificated routes. The Congress has set national policy objectives that include a healthy local service

So Much With So Little

INTERESTING results of local service airline operations over a combined total of 1,770 months — equivalent of 147½ years — are detailed in the large table above. The 13 carriers have carried 28 million passengers, flying over half a billion plane miles and increasing their fleet to 305 aircraft. But after all this, their combined net worth of $15.4 million is almost $900,000 less than their combined equity investments of $16.3 million, spotlighting a negative earning record for the industry as a whole.

industry for domestic and defense reasons. The Civil Aeronautics Board itself in recent years has created an atmosphere of confidence and stability, and has decreed that the operators shall be provided a "fair and reasonable return." The owners and management of the airlines themselves are dedicated businessmen with long experience, whose devotion to the operation transcends the profit motive.

In the past, these arguments have managed to sell the securities despite the weaknesses in the actual arithmetic involved. Where there existed a reasonable relationship of equity to debt, and where working capital was sufficient to maintain operations comfortably, debt securities could be sold.

However, in these days of high interest rates, where return opportunities to lenders begin at 6 per cent, the arithmetic supporting such loans becomes painfully thin. A recent study made for one airline, after provision for the 25-75 equity-debt ratio, shows interest coverage on proposed debt from all cash flow (before depreciation) at less than two times in one of the ten years, and averaging only three times throughout the life of the loan. Principal coverage ranged from a high of two times, down to a low of 1.53 times, averaging 1.7 times.

These low coverage ratios would not be adequate for the placement of debt issues in many other industries. Even when supported by a stable government subsidy, lenders are not eager to purchase such issues. The obvious answer is that loans must be reduced, and the amount of equity increased, or income must be upped by subsidy.

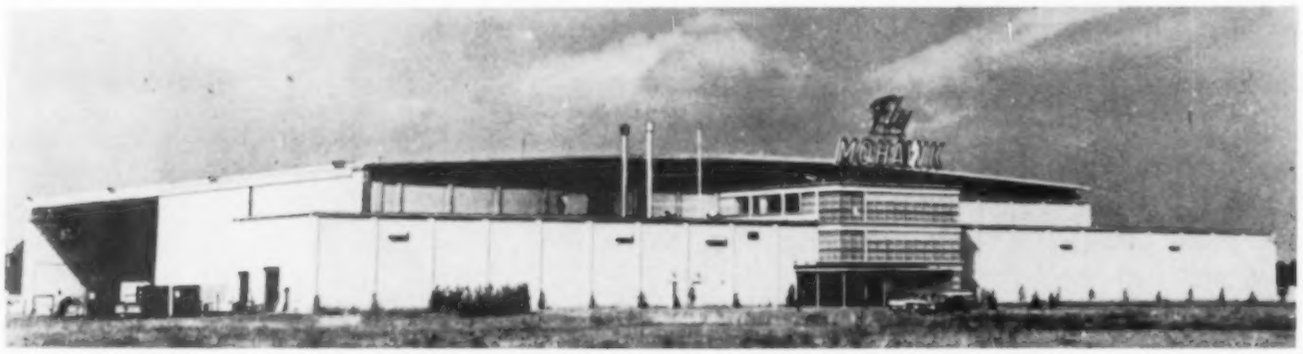
What do the airlines face in regard to raising equity funds? All of the airlines are under-capitalized to handle present operations and to take advantage of their growth potential. This venture capital, in the past mainly obtained from the management's own funds, and those of friends and associates, should now come from outside investors who will make a seasoned market in which repeated financing can be done as needed at a price fair to purchasers and present stockholders.

The fact that the industry is growing rapidly, that the local service airlines are permanently certificated, that management is seasoned, that the service is in the public interest and has Congressional support, and that the industry itself is glamorous, will also apply here as they do to the mortgage holder. But when the prospective stockholder computes the probable profit to himself under the present subsidy policy of 9½ per cent maximum return on invested capital, he is likely to choose another investment.

The 9½ per cent sounds large until it is reviewed. It can be substantially reduced by deductions for such things as interest expense, for expenses incurred in applying for new routes not granted, for entertainment expense, and for any examples of inefficiency that the Mail Rate Section of the CAB may uncover from its advantage of hindsight. The return itself may not be available to the airline for several years at a time when on an open rate, with resulting increased costs for operating capital. Current high interest rates leave little chance of leverage on the investment on the difference between the rate of return and the borrowing rate.

Another deterrent will be the inability of the stockholder to obtain late accurate financial information of the airline. When an airline is on an open rate for, let us say, three years, there is considerable speculation on the part of the airline management itself as to the amount of subsidy eventually to be collected, and thus it is impossible to be accurate on earnings per share, book value per share, and various ratios that would result from receipt of all subsidy accrued.

In the long run an adequate program now will bring about much more quickly the time when the local service airlines will require less funds instead of more, and subsequently when they, like the trunks, will be free from government support.



MODERN NEW FACILITIES CONTRIBUTE TO INCREASED EFFICIENCY for two local service airlines. Pictured above is the new $3,000,000 headquarters of Mohawk Airlines at Oneida County Airport between Utica and Rome, N. Y., while the photos below show Central Airlines' new $1,800,000 headquarters facilities at Amon Carter Airport, Ft. Worth, Tex. Oneida county built Mohawk's new base, its cost being amortized through a 26-year lease. Municipal revenue bonds built Central's new base, its cost being amortized by a 25-year lease. Several other local carriers plan similar new facilities.

Newer, Larger Planes Carry Growing Loads

NEW equipment is playing an ever increasing role in the operations of the local service airlines. In 1959, aircraft other than the DC-3 accounted for 38% of the passenger miles as compared with only 20% in 1958. The Fairchild F-27 accounted for 15.1% of the total local service passenger miles in 1959 compared with only 1% in 1958. The 1960 figures will be even more impressive.

The larger aircraft are principally in use on the more lucrative routes. A study of the map on pages 65-66 indicates that most of the service with larger aircraft is provided on flights operated under liberalized authority such as two-stop Boston-Washington, non-stop Duluth-Chicago, two stop Minneapolis-St. Louis, two-stop Denver-Phoenix, and non-stop Phoenix-Salt Lake City.

Currently, only four locals are not operating equipment larger than the DC-3, and two of these have announced purchase arrangements for larger aircraft, while a third is on record as planning such a purchase.

Six locals are today using turbine powered equipment and a seventh has announced purchase of such planes. All but one of the present six turbine operators are utilizing the Fairchild F-27. Allegheny is operating the Napier Eland powered Convair, and Lake Central has announced purchase of Allison powered Convairs.

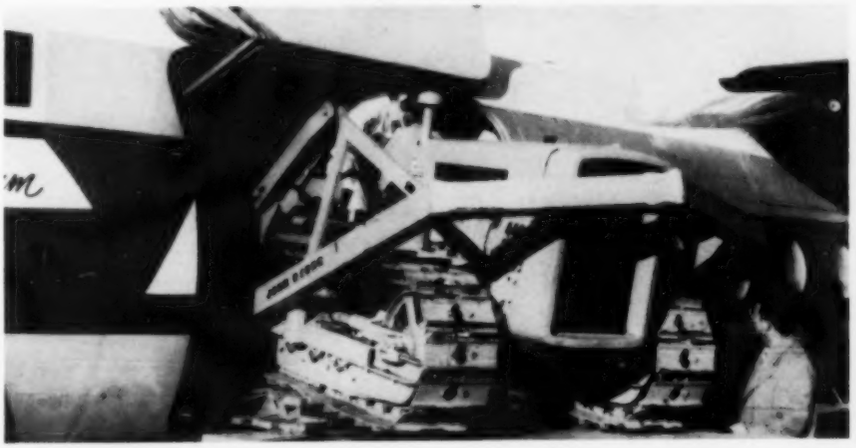
The DC-3 must not be discounted, however, for in May of this year it provided the only local service to 70% of the points served (312 of 451 points). Last year the DC-3 flew over 75% of the total plane miles. The DC-3 still appears to be the only plane available capable of providing basic local service to the smaller communities.

According to latest Fairchild Aircraft information on F-27 scheduled service operations by 12 airlines, the total fleet of the high-wing prop-jets was 49 F-27's which had accumulated a total of 102,979 flight hours as of April 30, 1960, with 3,829 hrs. for the individual F-27 with highest logged aircraft hours. During April, 1960, the 49 F-27's logged 8,270 flight

(Continued on page 106)

Ozark is fifth local service carrier to equip with Fairchild F-27 propjets.

Central Airlines is plushing its 21-seat DC-3 cabins for more appeal. Large Fairchild F-27 cargo door enables Northern Consolidated to haul bulldozers (below) and other freight in Alaska.



LOCAL CARRIER EQUIPMENT PRODUCTIVITY

1959 Scheduled Services

Aircraft	Revenue Plane Miles	Revenue Passenger Miles (000)	Available Seat Miles (000)	Average Loads: Passengers	Average Loads: Load Factors
Douglas DC-3	64,809,022	634,638	1,531,238	9.8	41.4%
% of total	75.9%	62.0%	66.3%	....	....
Larger Aircraft:					
Convair 240	3,313,653	75,156	132,545	22.7	56.7%
% of total	3.9%	7.3%	5.7%	....	....
Convair 340	2,394,357	41,441	102,929	17.3	40.3%
% of total	2.8%	4.1%	4.5%	....	....
Convair 440	447,892	11,566	21,027	24.2	55.0%
% of total	.6%	1.1%	.9%	....	....
Martin 202	5,685,971	102,503	204,694	18.0	50.1%
% of total	6.6%	10.0%	8.9%	....	....
Fairchild F-27	8,536,756	153,849	307,436	18.0	50.0%
% of total	10.0%	15.1%	13.3%	....	....
Convair 540	211,249	4,324	9,295	20.5	56.5%
% of total	.2%	.4%	.4%	....	....
Sub-totals					
Large piston	11,871,873	230,666	461,195	19.4	50.0%
% of total	13.9%	22.5%	20.0%	....	....
Large turbine	8,748,005	158,173	316,731	18.1	49.9%
% of total	10.2%	15.5%	13.7%	....	....
Total Non-DC-3	20,619,878	388,839	777,926	18.9	50.0%
% of total	24.1%	38.0%	33.7%	....	....

—(Ray and Ray Compilation)

This 44-passenger prop-jet Convair 540, powered by Napier Eland turbine engines, was used to inaugurate Allegheny Airlines' new commuter service. In May, new Pittsburgh-Philadelphia service averaged 26 passengers on six daily round trips.
—(FLIGHT MAGAZINE Photo.)

Allegheny Aims For Mass Markets

ALLEGHENY Airlines has found impressive passenger acceptance of a promising experiment in commuter services between Pittsburgh and Philadelphia with the passenger offered a choice of two fare levels and two classes of service on six daily round-trip non-stop schedules. Full-fare passengers call for a reservation as customary, but at the airport they walk directly to the loading gate, give their name to the attendant, check or carry their baggage aboard and pay the stewardess after take-off, using cash, check or Air Travel Plan credit card (she even has blank checks for those needing them). Passengers using a no-reservation plan save 35% — at the lobby ticket counter or the loading gate, they simply pick up a handy card, stamp it in an adjacent time-clock, write their name on it, and hand it to an attendant and stand by. Five minutes before flight departure, as many cards as there are available seats are selected in order by time recorded and holders board the flight, paying the stewardess (it costs the bargain-fare user $2 to check his baggage if he doesn't want to carry it). FAA helps with the simplification by permitting Allegheny to estimate baggage at 27 lbs. per passenger (it is weighed only if it appears heavier than 40 lbs.).

It's as simple as that and the passengers like it. Started last October with three daily round-trips using the Napier-Eland-powered propjet Convair 540, Allegheny's commuter service was doubled by May, with Convair 440's sharing the loads.

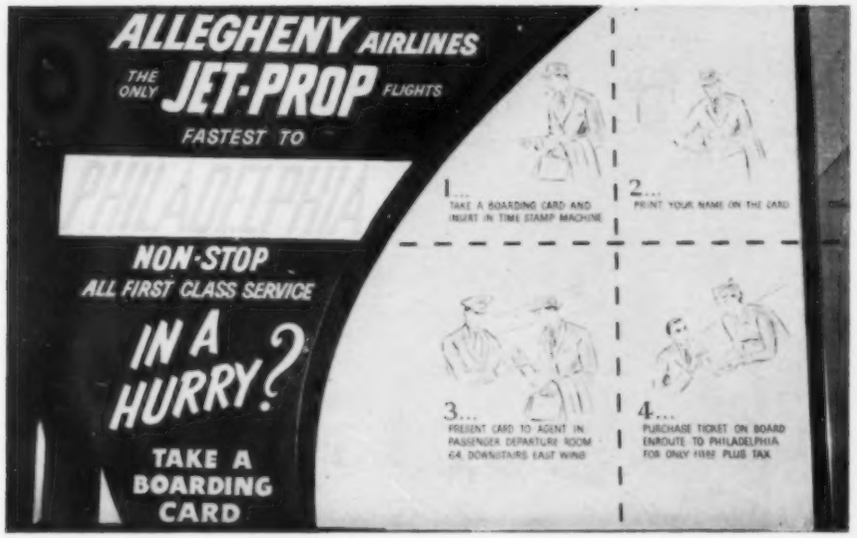
The commuter plan is part of a bold new approach to local air service by Allegheny's management, headed by Les Barnes, president. Even though it is one of the strongest local carriers, Allegheny's investment of $100,000 to $150,000 in the experiment required some soul-searching because there is little hope for subsidy aid should the experiment fail. But Barnes was convinced the need for the service eliminated any gamble.

Results have been encouraging. The service was started with a leased Eland-Convair 540, whose 44-passenger capacity compares with 52-passenger seating going into seven new Convair 440's and five new 540's now being introduced into Allegheny's services. The following average loads were carried each month since the commuter service began: October, 18 passengers with 3.5 daily round trips; November, 20.5 passengers with 3.5 DRT's; December 16.5 with 3.5 DRT's; January, 18.5 with 3.5 DRT's; February, 20 with 5.5 DRT's; March, 21.1 with 5.5 DRT's; April, 24.4 with 5.5 DRT's, and May, 26 passengers with 6 daily round trips. In April, 7,337 passengers were carried on the Pittsburgh-Philadelphia commuter flights and the indicated total for May was over 7,600. Allegheny reports that there has been a 39% increase in the total Pittsburgh-Philadelphia local passenger market since Allegheny began its commuter service in October. Of the total expanded two-city market, Allegheny is carrying 40% of the traffic. TWA and United, the trunks in this market, are thus losing only a small amount of local traffic and Allegheny claims this is more than off-set by their gains in long-haul traffic previously lost because of short-haul commitments.

At the start, full-fare "reservation" passengers accounted for 90% of the Allegheny commuter traffic. But, as the no-reservation plan caught on, bargain riders accounted for 40% of the load. Then, as the "no-reservation" passengers began getting caught short by lack of space on many flights, the ratio stabilized at about 66% reservation passengers and 34% no-reservation riders. Including tax, full fare for the hop is $20.30, same as trunk fare. Allegheny's no-reservation fare including tax is only $13. A discount-priced book of tickets was offered but soon dropped because of the problem of monitoring the book tickets to assure that purchasers of the ticket books were the sole users of the tickets, as required by tariff regulations.

Barnes said Allegheny chose the propjet 540 to launch the experiment "because we are dealing with a sophisticated public — in our opinion, the modern touch of offering this two-city market's only jet-prop service was worth the added investment, even if operational costs were the same or higher."

Allegheny's investigations indicated the turbo-prop 540's could be operated over the 269-mile Pittsburgh-Philadelphia segment at lower direct operating costs than the piston-powered


ALLEGHENY AIRLINES
THE ONLY JET-PROP FLIGHTS
FASTEST TO
PHILADELPHIA
NON-STOP
ALL FIRST CLASS SERVICE
IN A HURRY?
TAKE A BOARDING CARD
1... TAKE A BOARDING CARD AND INSERT IN TIME STAMP MACHINE
2... PRINT YOUR NAME ON THE CARD
3... PRESENT CARD TO AGENT IN PASSENGER DEPARTURE ROOM 64 DOWNSTAIRS EAST WING
4... PURCHASE TICKET ON BOARD ENROUTE TO PHILADELPHIA FOR ONLY $18 PLUS TAX

This sign in Pittsburgh terminal instructs non-reservation passengers for speedy processing. Passenger at upper right follows instructions by stamping convenient card in time clock to establish boarding priority. Stewardess Bernie Cisar (right) completes ticketing during 66-minute flight to Philadelphia, collecting payment.

—(FLIGHT MAGAZINE Photo at right; others by Allegheny Airlines.)

440's. Allegheny believes the breakpoint between the two types of power to be at the 125-mile stage length. With 12 new Convairs operational, the 540's will be assigned to high-density schedules with stage lengths averaging over 150 to 200 miles, while the 440's will be assigned to similar flights with shorter average stage lengths.

During January, the 4th month of operation of the Commuter service, Allegheny conducted a survey of passengers aboard certain of the flights. The survey covered only 40 passengers, but these 40 averaged three prior trips on the Commuter service.

The passengers were asked their reasons for the choice of Allegheny's service and their answers, in order of importance listed, were: (1) Reliability of departure times; (2) Simplicity of ticketing and other passenger handling procedures; (3) Economy of the no-reservation plan, and (4) Turbo-prop equipment.

Barnes believes that the turbo-prop equipment provided the chief "lure". That it is a major feature was obvious to this writer, who flew the service recently. There was no sound or vibration — we did not know the engines had even been started until the plane began moving away from the terminal.

Regarding the Eland engines, Barnes says, "Every guarantee that Napier made on the engines was exceeded. We operated the service for several months with a single airplane. We were the first airline to use the engines. Oddly enough, our main problems have been with the electrical system of the airplane itself, and these were minor."

How did Allegheny establish the no-reservation fare level? By determining that a 60% average load factor with every fare at the $13.00 level would permit a satisfactory profit over and above the expenses involved. The expenses were computed as direct operating costs (flight crew, fuel, oil, insurance, maintenance, provision for overhaul, and depreciation of flight equipment) which runs about 80c a mile, in-flight service (higher than normal because of two stewardesses) at 6c per mile, additional ground personnel to handle the increased flights at $6,000 per month, and an allowance of 18c per mile to cover additional overhead costs (the 18c figure is 25% of the system-wide overhead average per mile).

Barnes states, "When we reach a 60% average load factor for the service, we will again add flights. We can handle as many as ten daily round trips over the route without adding ground personnel. This, however, is only so long as the departures are kept at least an hour apart."

Allegheny's experiment is the first operational step in what is planned as a gradual "orientation to mass travel markets." Barnes explains: "We believe that use of air travel must be simplified for the passenger. It must be made more readily available both from a service and from a cost standpoint. Toward this end, we believe that all restrictions should be removed from local service carriers. Any operating authorities that result from such a removal of restrictions should be 'permissive' as opposed to being required, and any operations conducted under such permissive authority must be operated without being subsidized."

The Pittsburgh-Philadelphia Commuter non-stops are in effect a by-product of permissive authority in lifting of certain restrictions. Allegheny has not officially sought any opinion from the mail rate section of the Board as to the treatment of either losses or gains from operation of the experimental service. The Board has only approved as experimental the tariff under which the no-reservation and book discount fares were established. A public hearing on these fares is tentatively scheduled to begin July 6 in Washington. The result of the hearing could place a damper on further efforts in this line, or it could act as a stimulus. It is likely that at least a year will pass before the Board will reach its decision.

CAB's new Chairman, Whitney Gillilland, in a speech on April 28, commented on Allegheny's fares as follows: ". . . this tariff was not suspended when filed because the Board considered that it represented a worthwhile experiment in promotional fares and lower cost service. It was therefore permitted to become effective pending the results of the Board's investigation into lawfulness. I have seen the preliminary data and the traffic that appears to have been generated is impressive." Carefully worded as is this statement, it is still a strong indication that Allegheny has come up with a good thing.

Allegheny thinks so, too. It has recently applied for authority to conduct a similar Commuter service in the New York-Washington market.

—E.H.P.

Leading Cities Served By Eac

IN PASSENGERS BOARDED:

	ALLEGHENY		BONANZA		CENTRAL		FRONTIER		LAKE CENTRAL		MOHAWK		NORTH CENTRAL	
1.	New York	95,658	Phoenix	56,331	Dallas	21,366	Denver	50,729	Chicago	36,877	New York	157,485	Chicago	260,244
2.	Pittsburgh	77,568	Las Vegas	42,514	Kansas City	18,470	Phoenix	20,895	Columbus, Ohio	23,631	Binghamton	60,834	Milwaukee	106,148
3.	Harrisburg	51,524	Los Angeles	29,640	Fort Smith	13,086	Albuquerque	17,626	Indianapolis	22,489	Utica	59,670	Minneapolis	74,907
4.	Scranton	41,869	Reno	12,083	Oklahoma City	10,357	Salt Lake City	16,504	Cleveland	13,514	Syracuse	59,368	Detroit	52,743
5.	Washington	35,108	El Centro	11,945	Lawton	9,760	Grand Junction	16,091	Lafayette, Ind.	12,575	Buffalo	35,723	Duluth	39,247
6.	Erie	32,987	Yuma	11,566	Topeka	7,715	Farmington	15,219	Cincinnati	10,242	Boston	26,250	Madison	36,331
7.	Bradford	23,832	Salt Lake City	10,668	Joplin	7,454	Lincoln	13,043	Youngstown	9,520	Rochester, N. Y.	25,714	Green Bay	32,549
8.	Williamsport	22,644	San Diego	9,248	St. Louis	7,320	Omaha	11,759	Mansfield	9,348	Elmira	24,964	Kalamazoo	25,655
9.	Philadelphia	21,325	Palm Springs	7,592	Fayetteville	7,289	Kansas City	10,580	South Bend	8,982	Detroit	21,086	Oshkosh	25,337
10.	Cleveland	19,707	Ontario	7,297	Tulsa	7,134	Tucson	8,792	Terre Haute	8,474	Albany, N.Y.	14,674	South Bend	22,218
11.	Atlantic City	17,114	Santa Ana	5,727	Wichita	6,045	Flagstaff	7,517	Lima	7,121	Ithaca	13,370	Battle Creek	19,030
12.	Detroit	14,337	Riverside	5,528	Little Rock	5,162	Billings	7,128	Pittsburgh	6,577	Erie	9,829	Wausau	13,976
13.	Parkersburg	14,105	Prescott	2,289	Fort Worth	3,923	Pueblo	6,337	Dayton	6,555	White Plains	8,516	Omaha	11,862
14.	Jamestown, N. Y.	13,030	Apple Valley	2,213	Ponca City	3,271	Durango	5,909	Grand Rapids	6,403	Watertown, N. Y.	8,399	Grand Rapids	10,714
15.	Phillipsburg	11,027	Blythe	1,754	Liberal	3,079	Cheyenne	5,751	Muncie	5,117	Poughkeepsie	7,004	Beloit	10,057
16.	Johnstown	10,294	Grand Canyon	1,337	Hot Springs	3,056	Casper	5,581	Kokomo	4,500	Worcester	4,074	Lansing	8,504
17.	Lancaster	8,507	Kingman	1,335	Enid	3,038	Riverton	5,105	Danville, Ill.	4,448	Ogdensburg	3,457	Eau Claire	7,716
18.	Huntington	8,165	Cedar City	1,303	Denver	2,318	Cortez	4,070	Buffalo	4,250	Springfield, Mass.	2,832	Sioux Falls	7,410
19.	Altoona	7,864	Page	701	Amarillo	2,254	Rapid City	3,786	Kalamazoo	3,614	Glens Falls	2,247	LaCrosse	7,394
20.	Wheeling	6,271	Flagstaff	638	Duncan	2,064	Scottsbluff	3,146	Detroit	3,583	Keene	872	Marquette	6,944

IN PASSENGERS BOARDED AT CITIES SERVED EXCLUSIVELY BY LOCALS:

1.	Bradford	23,832	El Centro	11,945	Fayetteville	7,289	Farmington	15,219	Lafayette, Ind.	12,575	Utica	59,670	Duluth	39,247
2.	Jamestown, N.Y.	13,000	Yuma	11,566	Ponca City	3,271	Flagstaff	7,517	Mansfield	9,348	Ithaca	13,370	Green Bay	32,549
3.	Phillipsburg	11,027	Santa Ana	5,727	Liberal	3,079	Durango	5,909	Lima	7,121	White Plains	8,516	Kalamazoo	25,655
4.	Johnstown	10,294	Riverside	5,528	Enid	3,038	Riverton	5,105	Kokomo	4,500	Poughkeepsie	7,004	Oshkosh	25,337
5.	Altoona	7,864	Prescott	2,289	Duncan	2,064	Cortez	4,070	Danville, Ill.	4,448	Ogdensburg	3,457	Battle Creek	19,030
6.	Hagerstown	5,978	Apple Valley	2,213	Harrison	1,922	Gallup	3,044	Kalamazoo	3,614			Wausau	13,976
7.	Franklin	3,669	Blythe	1,754	Borger	1,921	Grand Island	2,739	Marion, Ind.	3,286	NOTE: No other		Beloit	10,057
8.	Hazelton	3,650	Grand Canyon	1,337	Paris	1,827	Montrose	2,563	Bloomington, Ind.	2,657	cities served		Eau Claire	7,716
9.	Salisbury	3,150	Kingman	1,335	Muskogee	1,751	Vernal	2,537	Richmond, Ind.	1,951	exclusively.		LaCrosse	7,394
10.	Cape May	2,027	Cedar City	1,303	Stillwater	1,659	Laramie	2,457	Portsmouth	1,607			Marquette	6,944

IN PASSENGERS BOARDED PER DEPARTURE:

1.	New York	16.7	Reno	16.2	St. Louis	10.2	Denver	11.8	Cleveland	15.8	New York	25.9	Chicago	16.5
2.	Pittsburgh	13.6	Las Vegas	13.1	Kansas City	9.3	Kansas City	10.5	Chicago	15.0	Detroit	18.1	Minneapolis	10.5
3.	Washington	12.8	Phoenix	12.2	Little Rock	7.6	Albuquerque	10.2	Pittsburgh	11.0	Poughkeepsie	15.8	Omaha	9.3
4.	Cleveland	12.6	Los Angeles	11.8	Lawton	5.1	Phoenix	9.2	Columbus, O.	7.5	Boston	12.6	Detroit	8.6
5.	Detroit	11.4	Salt Lake City	11.3	Dallas	4.7	Salt Lake City	7.1	Indianapolis	6.9	Syracuse	10.3	Duluth	7.6
6.	Scranton	9.2	El Centro	5.5	Denver	4.7	Omaha	6.6	Grand Rapids	6.7	Binghamton	10.0	Milwaukee	7.5
7.	Atlantic City	8.4	Palm Springs	5.3	Oklahoma City	4.6	Billings	5.9	Buffalo	6.5	Buffalo	9.5	Madison	6.9
8.	Philadelphia	8.2	Yuma	5.3	Joplin	4.5	Tucson	5.4	Youngstown	6.4	Ithaca	9.0	International Falls	6.3
9.	Buffalo	7.7	Ontario	5.0	Topeka	4.5	Grand Junction	4.8	Detroit	5.5	Utica	8.1	Kalamazoo	5.8
10.	Harrisburg	6.7	San Diego	4.4	Tulsa	4.3	Flagstaff	3.8	Cincinnati	5.4	Elmira	6.8	Oshkosh	5.6

1959 Traffic Record of Cities Served by Local Service Airlines

(Ranked in Order by Number of Boarding Passengers; Compiled by FLIGHT MAGAZINE from CAB Records)

NOTE: AL, Allegheny; BL, Bonanza; CN, Central; FL, Frontier; LC, Lake Central; MO, Mohawk; NO, North Central; OZ, Ozark; PC, Pacific; PI, Piedmont; SO, Southern; TT, Trans-Texas; WC, West Coast. Where more than one local airline is indicated as serving a city, the first carrier listed boarded the greatest number of passengers, the second listed boarded the second greatest number, etc. * Indicates a city served exclusively by one or more local service airlines. (1) Local service operations were inaugurated during 1959. (2) Termination of service during 1959. (3) Seasonal service. (4) City named is one of two or more cities designated for service through a joint airport.

Rank 1959	Rank 1958	City and State	Carrier	Passengers Boarded 1959	Passengers Boarded 1958	Percent Change 1959/58	Passengers Boarded Per Departure
1	1	Chicago, Ill.	NO, OZ, LC	419,110	369,762	13.3%	16.1
2	2	New York, N. Y. (4)	MO, AL	253,143	206,346	22.7	21.5
		Los Angeles-Burbank, Calif.	PC, BL	119,888	100,612	19.2	11.2
3	3	Milwaukee, Wisc.	NO, OZ	111,842	100,981	10.7	7.3
4	4	Los Angeles, Calif.	PC, BL	102,997	84,559	21.8	13.5
		San Francisco-Oakland, Calif.	PC, WC	98,927	83,474	18.5	8.2
5	5	Washington, D. C.	PI, AL	95,079	80,604	18.0	16.3
6	7	Detroit, Mich.	NO, MO, AL, LC	91,749	74,501	23.2	10.0
7	6	San Francisco, Calif.	PC, WC	91,018	78,891	15.4	11.1
8	9	Minneapolis, Minn. (4)	NO, OZ	89,428	63,888	39.9	10.4
		Dallas-Ft. Worth, Texas	TT, CN	88,048	76,063	15.7	4.8
9	8	Pittsburgh, Pa.	AL, LC	84,145	74,204	13.4	13.4
10	11	Phoenix, Ariz.	BL, FL	77,229	62,230	24.1	11.2
11	10	Dallas Tex.	TT, CN	72,420	62,496	15.8	6.6
12	12	St. Louis, Mo.	OZ, CN	71,906	60,502	18.8	10.7
13	13	Atlanta, Ga.	SO	65,438	55,257	18.4	13.7
14	16	Binghamton, N. Y. (4)	MO	60,834	46,659	30.3	10.0
15	14	*Utica, N. Y. (4)	MO	59,670	50,389	18.4	8.1
16	19	Syracuse, N. Y.	MO	59,368	41,046	44.6	10.3
17	17	Las Vegas, Nev. (4)	BL, PC	58,697	46,632	25.9	13.8
18	21	Seattle, Wash.	WC	55,580	39,099	42.1	14.7
19	15	Cincinnati, O.	PI, LC	54,082	48,699	11.0	12.1
20	18	Denver, Colo.	FL, CN	53,047	46,340	14.4	11.1
21	20	Harrisburg, Pa. (4)	AL	51,524	40,113	28.4	6.7
22	24	Portland, Ore. (4)	WC, PC	51,479	35,458	45.2	10.3
23	22	Erie, Pa.	AL, MO, LC	45,612	36,605	24.6	5.0
24	25	Buffalo, N. Y. (4)	MO, AL, LC	44,749	35,165	27.3	8.9
25	23	Scranton, Pa. (4)	AL	41,869	36,552	14.5	9.2
26	56	Kansas City, Mo.	CN, OZ, FL	41,811	19,655	112.7	9.3
27	28	Roanoke, Va.	PI	40,308	32,926	22.4	3.9
28	30	*Duluth, Minn. (4)	NO	39,247	31,375	25.0	7.6
29	29	Memphis, Tenn.	SO, TT	39,229	31,748	23.5	8.1
30	31	Louisville, Ky.	PI, OZ	39,103	31,264	25.0	13.7
31	27	Bristol, Tenn. (4)	PI	38,952	33,003	18.0	4.7
32	26	Peoria, Ill.	OZ	38,921	35,064	10.9	6.2
33	32	Madison, Wisc.	NO, OZ	38,632	29,258	32.0	6.1
34	36	Monterey, Calif. (4)	PC	36,280	28,274	28.3	10.0
35	34	Columbus, O.	LC, PI	34,582	28,936	19.5	8.1
36	37	*San Jose, Calif. (4)	PC	34,463	28,112	22.6	6.7
37	41	Cleveland, O.	AL, LC	33,221	25,930	28.1	13.7
38	35	*Green Bay, Wisc.	NO	32,549	28,745	13.2	3.5
39	33	South Bend, Ind.	NO, LC	31,200	29,011	7.5	4.8
40	45	Salt Lake City, Utah	FL, BL, WC	31,184	23,868	30.6	8.4
41	40	*Eureka, Calif. (4)	PC	31,005	25,974	19.4	11.6
42	39	Houston, Texas	TT	30,969	26,230	18.0	7.8
43	38	*Kalamazoo, Mich.	NO, LC	29,269	27,309	7.1	4.7
44	138	Omaha, Neb.	NO, FL, OZ	27,424	6,810	302.7	7.2
45	43	Indianapolis, Ind.	LC, OZ	27,391	25,410	7.7	7.0
46	51	Boston, Mass.	MO	26,250	21,504	22.0	12.6

Traffic Growth At 440 Stops

PASSENGER boardings on the local airline systems in 1959 increased by nearly a million (995,668) for a booming 23% growth, the highest in nine years. The 1959 growth contrasts strongly with only a 7¾% growth in 1958.

New cities added to the systems of the locals and first served during 1959 totaled a whopping 59, but these 59 points accounted for only 1½% out of the 23% increase in passenger boardings. The 59 new points boarded 76,289 passengers out of the 5,328,706 total boardings in 1959. However, most of these 59 cities were added during the year, thus their total figures do not reflect a full year of service.

Service to 11 points was terminated during 1958 and these do not appear in the 1959 listings, hence the net

LOCAL SERVICE AIRLINES
Number of Employees
1958 - 1959

Carrier	Beginning of Year	End of Year	% Increase
Allegheny	855	948	10.9
Bonanza	436	480	10.1
Central	450	489	8.7
Frontier	913	1,164	27.5
Lake Central	412	448	8.7
Mohawk	732	945	29.1
North Central	1,399	1,893	35.3
Ozark	808	1,104	36.6
Pacific	560	668	19.3
Piedmont	931	1,018	9.3
Southern	581	656	12.9
Trans-Texas	659	779	18.2
West Coast	589	848	44.0
Totals	9,325	11,440	22.7

—(Ray & Ray Compilation)

Each Local Service Airline

OZARK		PACIFIC		PIEDMONT		SOUTHERN		TRANS-TEXAS		WEST COAST		Avg. All Carriers	
Chicago	121,989	San Francisco	85,529	Washington	59,971	Atlanta	65,438	Dallas	52,054	Seattle	55,580	1.	86,866
St. Louis	64,586	Los Angeles	73,357	Cincinnati	43,810	Memphis	26,396	Houston	30,969	Portland, Ore.	49,080	2.	49,100
Peoria	38,921	Monterey	16,280	Roanoke	40,308	New Orleans	16,035	Beaumont	17,535	Boise	25,260	3.	34,099
Springfield, Ill.	26,141	San Jose	34,463	Bristol	38,952	Monroe	12,207	San Antonio	17,053	Yakima	23,326	4.	27,583
Rockford	23,121	Eureka	31,005	Richmond, Va.	25,031	Eglin AFB	11,813	Memphis	12,833	Pasco	17,613	5.	21,682
Moline	19,439	Sacramento	21,243	Louisville	24,692	Columbus, Ga.	10,201	McAllen	11,271	Spokane	15,713	6.	18,682
Champaign	17,115	Bakersfield	17,535	Charlotte	23,194	Greenville, Miss.	7,478	Fort Worth	10,705	Walla Walla	12,877	7.	16,283
Decatur	14,733	Burbank	16,891	Charlottesville	20,599	Columbus, Miss.	7,285	Tyler	9,768	North Bend	12,814	8.	14,848
Minneapolis	14,521	Las Vegas	16,183	Ch'rl'ton, W. Va.	20,302	Jackson, Miss.	7,189	Shreveport	8,588	Lewiston, Ida.	12,649	9.	13,971
Louisville	14,411	Santa Barbara	15,190	Lynchburg	18,683	Baton Rouge	6,488	Longview	8,452	Twin Falls	8,115	10.	12,280
Cedar Rapids	13,927	Santa Maria	14,376	Norfolk, Va.	15,394	Jacksonville	6,086	Harlingen	8,370	Klamath Falls	8,039	11.	10,932
Des Moines	12,794	Redding	9,497	Huntington	14,299	Panama City	6,055	Austin, Tex.	8,111	Port Angeles	7,970	12.	9,328
Kansas City	12,761	Oakland	7,080	Lexington	12,726	Tuscaloosa	5,352	Little Rock	7,797	Medford	7,701	13.	8,231
Paducah	12,064	Chico	5,837	Fay'ville, N. C.	12,594	Huntsville	5,054	San Angelo	7,384	Pocatello	7,408	14.	7,714
Columbia, Mo.	8,468	Oxnard	5,174	Raleigh	11,305	Albany, Ga.	4,838	Corpus Christi	6,876	Pullman	6,785	15.	6,710
Quincy	8,120	Medford	4,875	Columbus, O.	10,951	Birmingham	4,698	Hot Springs, Ark.	6,137	Eugene	6,423	16.	6,042
Springfield, Mo.	8,040	Crescent City	4,471	Asheville	9,407	Gadsden	4,598	Texarkana	6,040	Idaho Falls	6,397	17.	5,581
Mason City	7,372	Paso Robles	4,411	Winston-Salem	9,273	Gulfport	4,377	Lake Charles	5,546	Wenatchee	6,279	18.	5,200
Fort Dodge	6,639	Santa Rosa	3,161	Wilmington, N. C.	9,049	Valdosta	4,320	Lafayette, La.	5,119	San Francisco	5,489	19.	4,741
Dubuque	6,556	Stockton	2,752	Knoxville	8,682	Natchez	3,999	Laredo	4,905	Hoquiam	5,322	20.	4,287

Rockford	23,121	San Jose	34,463	Charlottesville	20,599	Elgin AFB	11,813	McAllen	11,271	Pasco	17,613	1.	22,204
Champaign	17,115	Eureka	31,005	Lynchburg	18,683	Greenville, Miss.	7,478	Tyler	9,768	North Bend	12,814	2.	14,424
Decatur	14,733	Santa Maria	14,376	Bluefield	7,973	Columbus, Miss.	7,285	Longview	8,452	Lewiston, Idaho	12,649	3.	10,192
Columbia, Mo.	8,468	Redding	9,497	Kinston	4,835	Tuscaloosa	5,352	Harlingen	8,370	Klamath Falls	8,039	4.	8,105
Quincy	8,120	Chico	5,837	Hickory	2,987	Gadsden	4,598	Laredo	4,905	Port Angeles	7,970	5.	5,972
Mason City	7,372	Oxnard	5,174	Beckley	2,577	Natchez	3,999	Victoria	3,628	Pullman	6,785	6.	5,857
Fort Dodge	6,639	Crescent City	4,471	Myrtle Beach	2,267	Athens	3,837	Pine Bluff	3,838	Wenatchee	6,279	7.	4,230
Dubuque	6,556	Paso Robles	4,411	London	1,337	Anniston	3,348	El Dorado	3,443	Hoquiam	5,322	8.	3,681
Jefferson City	5,733	Santa Rosa	3,161	Southern Pines	793	Tupelo	3,167	Lufkin	2,209	Astoria	4,430	9.	3,136
Iowa City	4,821	Santa Catalina	2,434	Morehead City	373	Moultrie	2,730	Marshall	1,751	Ephrata	4,230	10.	2,695

Chicago	15.6	Las Vegas	16.1	Washington	19.5	Atlanta	13.7	Dallas	8.0	Seattle	14.7
Louisville	12.6	Los Angeles	14.3	Cincinnati	17.0	Elgin AFB	9.3	Houston	7.8	Port Angeles	11.5
St. Louis	10.7	Eureka	11.6	Louisville	14.5	Panama City	8.9	Memphis	7.7	Portland, Ore.	10.7
Minneapolis	9.8	San Francisco	11.6	Columbus, O.	9.6	Memphis	8.4	Beaumont	5.5	Salt Lake City	9.3
Kansas City	8.6	Monterey	10.0	Charlotte	8.4	New Orleans	8.2	Jackson, Miss.	5.5	Boise	8.9
Indianapolis	7.8	Santa Maria	8.4	Knoxville	8.2	Monroe	7.5	San Angelo	5.1	North Bend	7.0
Sioux City	7.3	Santa Catalina	7.9	Norfolk, Va.	8.2	Jacksonville	6.3	McAllen	4.9	San Francisco	6.7
Rockford	7.1	Santa Barbara	7.0	Richmond, Va.	6.5	Mobile	4.7	Midland	4.9	Spokane	6.5
Nashville	6.3	San Jose	6.7	Wilmington, N. C.	5.9	Charlotte	4.2	New Orleans	4.8	Idaho Falls	6.2
Paducah	6.3	Sacramento	5.9	Asheville	5.3	Huntsville	4.2	San Antonio	4.4	Pasco	6.0

FLIGHT MAGAZINE Compilation

increase in points served was 48.

Every one of the 13 local service airlines showed increases in passenger boardings during 1959, ranging from a low of 14% for one airline beset by labor problems that caused a period of reduced operations, to a high of 38% for West Coast which was aided by a full year of turbo-prop operations and substantial new route operations during the latter part of the year.

During 1959, 114 cities topped 10,000 boarding passengers, an increase of 14 cities over the 100 such points in 1958. As predicted at this time last year, Chicago became the first city to top 400,000 boardings with a generous 419,110. Los Angeles now becomes the fourth city to join the ultra-exclusive list of those boarding over 100,000 passengers a year.

It is difficult to single out the cities showing strong growth during 1959 because there are so many, but Minneapolis-St. Paul (40%), Binghamton (30%), Syracuse (45%), Seattle (42%), Portland, Ore. (45%), Kan-

LOCAL SERVICE AIRLINES
Number of Aircraft Operated
4th Quarters, 1958-1959

Carrier	1958	1959	Increase
Allegheny	23	25	2
Bonanza	10	16	6
Central	14	15	1
Frontier	17	30	13
Lake Central	10	12	2
Mohawk	21	22	1
North Central	31	37	6
Ozark	24	24	0
Pacific	19	23	4
Piedmont	23	26	3
Southern	16	19	3
Trans-Texas	20	25	5
West Coast	19	20	1
Totals	247	294	47

—(Ray & Ray Compilation)

Rank 1959	Rank 1958	City and State	Carrier	Passengers Boarded 1959	Passengers Boarded 1958	Percent Change 1959/58	Passengers Boarded Per Departure
47	48	Springfield, Ill.	OZ	26,141	22,749	14.9	3.8
48	54	Rochester, N. Y.	MO	25,714	20,249	26.9	6.3
49	49	Charlotte, N. C.	PI, SO	25,533	22,592	13.0	7.7
50	46	*Oshkosh, Wisc.	NO	25,337	23,723	6.8	5.6
51	58	Boise, Idaho	WC	25,260	18,672	35.2	8.9
52	53	Richmond, Va.	PI	25,034	20,940	19.5	6.5
53	52	Elmira, N. Y. (4)	MO	24,964	21,166	17.9	6.8
54	44	*Rockford, Ill.	OZ, NO	24,121	25,190	— 4.3	6.4
55	47	*Bradford, Pa. (4)	AL	23,832	22,894	4.1	3.9
56	57	Sacramento, Calif.	PC, WC	23,654	18,698	26.5	5.6
57	61	Yakima, Wash.	WC	23,326	17,296	34.8	4.4
58	55	Williamsport, Pa.	AL	22,644	19,732	14.8	4.9
59	50	Huntington, W. Va. (4)	PI, AL	22,464	21,657	3.7	4.8
60	81	Philadelphia, Pa. (4)	AL	21,325	13,246	61.0	8.2
61	64	*Charlottesville, Va.	PI	20,599	16,930	21.6	3.4
62	60	Parkersburg, W. Va. (4)	AL, PI	20,416	18,097	12.8	4.4
63	70	Charleston, W. Va.	PI	20,302	15,734	29.0	4.5
64	76	Moline, Ill. (4)	OZ	19,439	14,010	38.7	4.6
65	62	*Battle Creek, Mich.	NO	19,030	17,275	10.1	4.6
66	87	New Orleans, La.	SO, TT	18,933	12,020	57.5	7.4
67	72	*Lynchburg, Va.	PI	18,683	15,310	22.0	2.7
68	59	Albuquerque, N. M.	FL	17,626	18,304	— 3.8	10.2
69	80	*Pasco, Wash. (4)	WC	17,613	13,271	32.7	6.0
70	67	Bakersfield, Calif.	PC	17,535	16,058	9.2	5.4
71	63	Beaumont, Texas (4)	TT	17,535	17,039	2.9	5.5
72	73	Grand Rapids, Mich.	NO, LC	17,117	14,876	15.0	4.5
73	66	*Champaign, Ill. (4)	OZ	17,115	16,213	5.5	4.6
74	89	Atlantic City, N. J. (4)	AL	17,114	11,272	51.8	8.4
75	71	San Antonio, Texas	TT	17,053	15,578	9.4	4.4
76	68	Burbank, Calif.	PC	16,891	16,053	5.2	5.6
77	65	Grand Junction, Colo.	FL	16,091	16,571	— 2.9	4.8
78	90	Spokane, Wash.	WC	15,713	11,029	42.4	6.5
79	77	Norfolk, Va.	PI	15,394	13,992	10.0	8.2
80	69	*Farmington, N. M.	FL	15,219	15,921	— 4.5	3.4
81	85	Santa Barbara, Calif.	PC	15,190	12,471	21.8	7.0
82	74	*Decatur, Ill.	OZ	14,733	14,242	3.4	4.1
83	82	Albany, N. Y. (4)	MO	14,674	12,770	14.9	4.6
84	78	Fort Worth, Texas	TT, CN	14,628	13,567	7.8	2.0
85	115	*Santa Maria, Calif.	PC	14,376	8,388	71.4	8.4
86	86	*Wausau, Wisc.	NO	13,976	12,318	13.4	3.5
87	146	Cedar Rapids, Iowa	OZ	13,927	6,489	114.6	3.5
88	83	Monroe, La.	SO, TT	13,780	12,516	10.0	5.8
89	42	*Ithaca, N. Y.	MO	13,370	25,842	—48.3	9.0
90	75	Fort Smith, Ark.	CN	13,086	14,103	— 7.3	3.4
91	367	Lincoln, Neb.	FL	13,043	396		3.1
92	95	*Jamestown, N. Y.	AL	13,030	10,730	21.4	3.6
93	96	Little Rock, Ark.	TT, CN	12,959	10,653	21.6	3.7
94	97	Walla Walla, Wash.	WC	12,877	10,535	22.2	4.5
95	92	*North Bend, Ore. (4)	WC	12,814	11,016	16.3	7.0
96	230	Des Moines, Iowa	OZ	12,794	3,164	304.3	5.2
97	91	Lexington, Ky.	PI	12,726	11,019	15.4	2.9
98	88	Joplin, Mo.	CN, OZ	12,695	11,431	11.0	4.2
99	100	*Lewiston, Idaho (4)	WC	12,649	10,287	22.9	4.3
100	94	Fayetteville, N. C.	PI	12,594	10,878	15.7	4.5
101	79	Medford, Ore.	WC, PC	12,576	13,236	— 5.0	5.1
102	103	*Lafayette, Ind.	LC	12,575	9,414	33.5	4.2
103	111	Reno, Nev.	BL	12,083	8,586	40.7	16.2
104	98	Paducah, Ky.	OZ	12,064	10,501	14.8	6.3
105	93	*El Centro, Calif.	BL	11,945	10,909	9.4	5.5
106	122	*Eglin AFB, Fla.	SO	11,813	7,745	52.5	9.3
107	99	*Yuma, Ariz.	BL	11,566	10,414	11.0	5.3
108	84	Raleigh, N. C. (4)	PI	11,305	12,509	— 9.7	3.2

Passengers Boarded at Fifty Leading Cities Served Exclusively by Local Service Airlines, 1959

Rank 1959	Rank 1958	City and State	Revenue Passengers	Airline
1.	1.	Utica, N. Y.	59,670	Mohawk
2.	2.	Duluth, Minn.	39,247	North Central
3.	4.	San Jose, Calif.	34,463	Pacific
4.	3.	Green Bay, Wisc.	32,549	North Central
5.	6.	Eureka, Calif.	31,005	Pacific
6.	5.	Kalamazoo, Mich.	29,269	North Central, Lake Central
7.	9.	Oshkosh, Wisc.	25,337	North Central
8.	8.	Rockford, Ill.	24,121	Ozark North Central
9.	10.	Bradford, Pa.	23,832	Allegheny
10.	12.	Charlottesville, Va.	20,599	Piedmont
11.	11.	Battle Creek, Mich.	19,030	North Central
12.	15.	Lynchburg, Va.	18,683	Piedmont
13.	17.	Pasco, Wash.	17,613	West Coast
14.	13.	Champaign, Ill.	17,115	Ozark
15.	14.	Farmington, N. M.	15,219	Frontier
16.	16.	Decatur, Ill.	14,733	Ozark
17.	31.	Santa Maria, Calif.	14,376	Pacific
18.	18.	Wausau, Wisc.	13,976	North Central
19.	7.	Ithaca, N. Y.	13,370	Mohawk
20.	21.	Jamestown, N. Y.	13,030	Allegheny
21.	19.	North Bend, Ore.	12,814	West Coast
22.	23.	Lewiston, Ida.	12,649	West Coast
23.	24.	Lafayette, Ind.	12,575	Lake Central
24.	20.	El Centro, Calif.	11,945	Bonanza
25.	34.	Eglin AFB, Fla.	11,813	Southern
26.	22.	Yuma, Ariz.	11,566	Bonanza
27.	30.	McAllen, Texas	11,271	Trans-Texas
28.	26.	Phillipsburg, Pa.	11,027	Allegheny
29.	32.	Johnstown, Pa.	10,294	Allegheny
30.	25.	Janesville, Wisc.	10,057	North Central
31.	28.	Tyler, Texas	9,768	Trans-Texas
32.	29.	Redding, Calif.	9,497	Pacific
33.	36.	Mansfield, Ohio	9,348	Lake Central
34.		White Plains, N. Y.	8,516	Mohawk
35.	39.	Columbia, Mo.	8,468	Ozark
36.	35.	Longview, Texas	8,452	Trans-Texas
37.	33.	Harlingen, Texas	8,370	Trans-Texas
38.	27.	Flagstaff, Ariz.	8,155	Frontier, Bonanza
39.		Quincy, Ill.	8,120	Ozark
40.		Klamath Falls, Ore.	8,039	West Coast
41.	38.	Bluefield, W. Va.	7,973	Piedmont
42.	40.	Port Angeles, Wash.	7,970	West Coast
43.	45.	Altoona, Pa.	7,864	Allegheny
44.	44.	Eau Claire, Wisc.	7,716	North Central
45.	37.	Greenville, Miss.	7,478	Southern
46.	42.	LaCrosse, Wisc.	7,394	North Central
47.		Mason City, Iowa	7,372	Ozark
48.	43.	Fayetteville, Ark.	7,289	Central
49.	41.	Columbus, Miss.	7,285	Southern
50.	50.	Lima, Ohio	7,121	Lake Central

—(FLIGHT MAGAZINE Compilation from CAB Reports.)

1959 TRAFFIC RECORD AT LOCAL SERVICE STOPS

(Continued from preceding page)

Rank 1959	Rank 1958	City and State	Carrier	Passengers Boarded 1959	Passengers Boarded 1958	Percent Change 1959/58	Passengers Boarded Per Departure
109	110	*McAllen, Texas (4)	TT	11,271	8,678	29.8	4.9
110	105	*Phillipsburg, Pa. (4)	AL	11,027	9,060	21.7	4.2
111	126	Oklahoma City, Okla.	CN	10,357	7,601	36.2	4.6
112	118	*Johnstown, Pa.	AL	10,294	8,228	25.1	3.6
113	108	Columbus, Ga.	SO	10,201	8,789	16.0	3.1
114	104	*Janesville, Wisc. (4)	NO	10,057	9,065	10.9	3.1
115	107	*Tyler, Texas	TT	9,768	8,821	10.7	2.4
116	161	Lawton, Okla. (4)	CN	9,760	6,045	61.4	5.1
117	121	Youngstown, Ohio	LC	9,520	8,034	18.4	6.4
118	109	*Redding, Calif.	PC	9,497	8,755	8.5	4.8
119	116	Asheville, N. C. (4)	PI	9,407	8,355	12.5	5.3
120	127	*Mansfield, O.	LC	9,348	7,571	23.4	3.1
121	117	Winston-Salem, N. C.	PI	9,273	8,236	12.5	3.6
122	114	San Diego, Calif.	BL	9,248	8,409	9.9	4.4
123	125	Hot Springs, Ark.	TT, CN	9,193	7,613	20.7	2.9
124	150	Jackson, Miss.	SO, TT	9,170	6,355	44.2	3.7
125	112	Wilmington, N. C.	PI	9,049	8,496	6.5	5.9
126	205	Tucson, Ariz.	FL	8,792	4,075	120.1	5.4
127	133	Knoxville, Tenn.	PI	8,682	7,318	18.6	8.2
128	101	Shreveport, La.	TT	8,588	9,846	—12.8	3.7
129	167	*White Plains, N. Y.	MO	8,516	5,494	55.0	6.7
130	166	Lancaster, Pa.	AL	8,507	5,517	52.4	3.1
131	139	Lansing, Mich.	NO	8,504	6,752	25.9	3.0
132	137	Terre Haute, Ind.	LC	8,474	6,860	23.5	5.3
133	134	*Columbia, Mo.	OZ	8,468	7,108	19.1	3.5
134	123	*Longview, Texas (4)	TT	8,452	7,715	9.5	2.3
135	124	Watertown, N. Y.	MO	8,399	7,679	9.3	4.7
136	120	*Harlingen, Texas (4)	TT	8,370	8,175	2.3	2.9
137	106	*Flagstaff, Ariz.	FL, BL	8,155	8,824	— 7.6	3.3
138	174	*Quincy, Ill. (4)	OZ	8,120	5,080	59.8	4.5
139	181	Twin Falls, Idaho	WC	8,115	4,733	71.4	3.2
140	131	Austin, Texas	TT	8,111	7,468	8.6	2.7
141	128	Greensboro, N. C. (4)	PI	8,058	7,557	6.6	2.9
142	129	Springfield, Mo.	OZ	8,040	7,548	6.5	4.1
143	221	*Klamath Falls, Ore.	WC	8,039	3,377	138.0	5.8
144	132	*Bluefield, W. Va. (4)	PI	7,973	7,340	8.6	2.7
145	135	*Port Angeles, Wash.	WC	7,970	7,024	13.4	11.5
146	185	Oakland, Calif.	PC, WC	7,909	4,583	72.6	2.1
147	149	*Altoona, Pa.	AL	7,864	6,388	23.1	3.4
148	148	*Eau Claire, Wisc.	NO	7,716	6,461	19.4	2.6
149	190	Topeka, Kansas	CN	7,715	4,425	74.3	4.5
150	144	Palm Springs, Calif. (4)	BL	7,592	6,529	16.2	5.3
151	130	*Greenville, Miss	SO	7,478	7,498	— .3	3.9
152	277	Sioux Falls, S. D.	NO	7,410	1,888	292.4	2.1
153	163	Pocatello, Idaho	WC	7,408	5,810	27.5	3.6
154	140	*La Crosse, Wisc.	NO	7,394	6,707	10.2	4.3
155	141	San Angelo, Texas	TT	7,384	6,635	11.2	5.1
156	209	*Mason City, Iowa	OZ	7,372	3,899	89.0	3.1
157	158	Wichita, Kans.	CN, OZ	7,351	6,139	19.7	3.5
158	154	Ontario, Calif. (4)	BL	7,297	6,261	16.5	5.0
159	145	*Fayetteville, Ark.	CN	7,289	6,520	11.7	2.7
160	136	*Columbus, Miss.	SO	7,285	6,915	5.3	3.4
161	142	Tulsa, Okla.	CN	7,134	6,602	8.0	4.3
162	102	Billings, Mont.	FL	7,128	9,553	—25.4	5.9
163	160	*Lima, Ohio	LC	7,121	6,027	18.1	3.7
164	165	Idaho Falls, Idaho	WC, FL	7,024	5,700	23.2	5.6
165	156	*Poughkeepsie, N. Y.	MO	7,004	6,207	12.8	15.8
166	175	*Marquette, Wisc.	NO	6,944	5,064	37.1	2.9
167	281	Sioux City, Iowa	OZ, NO	6,881	1,797	282.9	2.8
168	155	*Jackson, Mich.	NO	6,880	6,233	10.3	2.0
169	113	Corpus Christi, Texas	TT	6,876	8,448	—18.7	2.9
170	152	*Pullman, Wash. (4)	WC	6,785	6,313	7.4	3.1
171	275	*Fort Dodge, Iowa	OZ	6,639	1,959	238.8	2.4
172	151	*Stevens Point, Wisc. (4)	NO	6,569	6,317	3.9	2.1

sas City (112%), and Omaha (303%) are certainly outstanding among the first 50 leaders.

Comparing the 10 leading cities served by each airline in 1959 with the top ten for 1958 shows the average growth to be very close to the

Fifty Leading Cities Served By Local Service Airlines

(Ranked in Order by Passengers Boarded Per Departure)

Rank 1959	Rank 1958	City and State	Airline	Psgrs. Per Deptr.
1	1	New York, N. Y.	MO, AL	21.5
2	4	Washington, D. C.	PI, AL	16.3
3	9	Reno, Nev.	BL	16.2
4	2	Chicago, Ill.	NO, OZ, LC	16.1
5	3	Poughkeepsie, N. Y.	MO	15.8
6	15	Seattle, Wash.	WC	14.7
7	17	Las Vegas, Nev.	PC, BL	13.8
8	5	Atlanta, Ga.	SO	13.7
9	10	Cleveland, Ohio	LC, AL	13.7
10	11	Louisville, Ky.	PI, OZ	13.7
11	7	Los Angeles, Calif.	PC, BL	13.5
12	8	Pittsburgh, Pa.	AL, LC	13.4
13	13	Boston, Mass.	MO	12.6
14	12	Cincinnati, Ohio	PI, LC	12.1
15	31	Eureka, Calif.	PC	11.6
16	20	Port Angeles, Wash.	WC	11.5
17	21	Phoenix, Ariz.	BL, FL	11.2
18	6	Denver, Colo.	FL, CN	11.1
19	14	San Francisco, Calif.	PC, WC	11.1
20	18	St. Louis, Mo.	OZ, CN	10.7
21	23	Minneapolis, Minn.	NO, OZ	10.4
22	24	Portland, Ore.	WC, PC	10.3
23	30	Syracuse, N. Y.	MO	10.3
24	19	Albuquerque, N. M.	FL	10.2
25	37	Binghamton, N. Y.	MO	10.0
26	43	Detroit, Mich.	MO, AL, NO, LC	10.0
27	27	Monterey, Calif.	PC	10.0
28	16	Eglin AFB, Fla.	SO	9.3
29	32	Kansas City, Mo.	FL, CN, OZ	9.3
30	48	Scranton, Pa.	AL	9.2
31	35	Ithaca, N. Y.	MO	9.0
32	26	Boise, Idaho	WC	8.9
33	40	Buffalo, N. Y.	MO, AL, LC	8.9
34	28	Panama City, Fla.	SO	8.9
35		Atlantic City, N. J.	AL	8.4
36	25	Salt Lake City, Utah	BL, WC, FL	8.4
37		Santa Maria, Calif.	PC	8.4
38	44	Knoxville, Tenn.	PI	8.2
39		Norfolk, Va.	PI	8.2
40		Philadelphia, Pa.	AL	8.2
41	42	Columbus, O.	PI, LC	8.1
42	22	Memphis, Tenn.	SO, TT	8.1
43	46	Utica, N. Y.	MO	8.1
44		Santa Catalina, Calif.	PC	7.9
45	34	Houston, Texas	TT	7.8
46	41	Charlotte, N. C.	PI, SO	7.7
47		Duluth, Minn.	NO	7.6
48	29	New Orleans, La.	SO, TT	7.4
49	47	Milwaukee, Wisc.	NO, OZ	7.3
50	33	Omaha, Nebr.	NO, FL, OZ	7.2

systems' average at 22%, but individual airlines varied from Bonanza's low of 7% to Ozark's high of 59%.

Some 21 cities have fallen victim to the Civil Aeronautics Board's "use-it-or-lose-it" policy. This policy, which expects points served by locals to average five boardings per day to avoid investigation toward suspension of the service, resulted in 11 cities appearing in last year's listing to be missing from the 1959 figures and 10 more to be terminated during 1959. These 21 are the forerunners of many more suspensions to come, if the CAB continues to adhere to its policy. Five-boardings-per-day amounts to 1,800 boardings per year, and only 311 out of 440 points listed for 1959 exceeded the 1,800 figure. However, 43 of the "below standard" points were first served during 1959 and another four points are seasonally served, hence none of these should be so judged at this time. The warning flag is raised for all points not boarding 1,800 passengers per year and, says the CAB, unless extenuating circumstances (such as special needs due to remoteness) can be offered, many a city faces loss of its local airline service.

Fifty Leading Cities Served Exclusively By Local Service Airlines

(Ranked in Order by Passengers Boarded Per Aircraft Departure)

Rank 1959	Rank 1958	City and State	Airline	Psgrs. Per Deptr.
1	—	Poughkeepsie, N. Y.	MO	15.8
2	3	Eureka, Calif.	PC	11.6
3	2	Port Angeles, Wash.	WC	11.5
4	1	Eglin AFB, Fla.	SO	9.3
5	4	Ithaca, N. Y.	MO	9.0
6	10	Santa Maria, Calif.	PC	8.4
7	6	Utica, N. Y.	MO	8.1
8	—	Santa Catalina, Calif.	PC	7.9
9	8	Duluth, Minn.	NO	7.6
10	9	North Bend, Ore.	WC	7.0
11	7	San Jose, Calif.	PC	6.7
12	13	White Plains, N. Y.	MO	6.7
13	5	Rockford, Ill.	OZ, NO	6.4
14	11	International Falls, Minn.	NO	6.3
15	31	Pasco, Wash.	WC	6.0
16	—	Klamath Falls, Ore.	WC	5.8
17	17	Oshkosh, Wisc.	NO	5.6
18	14	El Centro, Calif.	BL	5.5
19	15	Yuma, Ariz.	BL	5.3
20	16	McAllen, Texas	TT	4.9
21	35	Redding, Calif.	PC	4.8
22	24	Kalamazoo, Mich.	NO, LC	4.7
23	32	Battle Creek, Mich.	NO	4.6
24	12	Champaign, Ill.	OZ	4.6
25	—	Quincy, Ill.	OZ	4.5
26	43	Cape May, N. J.	AL	4.4
27	—	Iowa City, Iowa	OZ	4.3
28	33	La Crosse, Wisc.	NO	4.3
29	45	Lewiston, Idaho	WC	4.3
30	20	Lafayette, Ind.	LC	4.2
31	28	Phillipsburg, Pa.	AL	4.2
32	26	Riverside, Calif.	BL	4.2
33	29	Decatur, Ill.	OZ	4.1
34	23	Escanaba, Mich.	NO	4.0
35	21	Morehead City, N. C.	PI	4.0
36	22	Ogdensburg, N. Y.	MO	4.0
37	18	Wenatchee, Wash.	WC	4.0
38	42	Bradford, Pa.	AL	3.9
39	—	Greenville, Miss.	SO	3.9
40	30	Hoquiam, Wash.	WC	3.9
41	37	Land O'Lakes, Wisc.	NO	3.9
42	27	Salisbury, Md.	AL	3.9
43	—	Grand Canyon, Ariz.	BL	3.8
44	25	Laredo, Texas	TT	3.8
45	—	Appleton, Wisc.	NO	3.7
46	—	Lima, Ohio	LC	3.7
47	—	Jamestown, N. Y.	AL	3.6
48	49	Johnstown, Pa.	AL	3.6
49	41	Oxnard, Calif.	PC	3.6
50	—	Paso Robles, Calif.	PC	3.6

Rank 1959	Rank 1958	City and State	Carrier	Passengers Boarded 1959	Passengers Boarded 1958	Percent Change 1959/58	Passengers Boarded Per Departure
173	200	*Dubuque, Iowa	OZ	6,556	4,226	55.1	2.6
174	186	Dayton, Ohio (4)	LC	6,555	4,578	43.1	4.4
175	147	Baton Rouge, La.	SO	6,488	6,475	.2	2.7
176	189	Eugene, Ore.	WC	6,423	4,451	44.3	3.0
177	—	*Aberdeen, S. D. (1)	NO	6,349	—	—	2.9
178	157	Pueblo, Colo.	FL	6,337	6,200	2.2	2.9
179	168	*Wenatchee, Wash.	WC	6,279	5,484	14.4	4.0
180	179	Wheeling, W. Va. (4)	AL	6,271	4,982	25.9	3.2
181	143	Jacksonville, Fla.	SO	6,086	6,574	— 7.5	6.3
182	159	Panama City, Fla.	SO	6,055	6,092	— .7	8.9
183	193	Texarkana, Tex.-Ark.	TT	6,040	4,382	37.8	3.2
184	170	*Danville, Ill.	LC, OZ	6,033	5,332	13.1	2.1
185	171	*Hagerstown, Md.	AL	5,978	5,297	12.9	2.8
186	153	*Durango, Colo.	FL	5,909	6,298	— 6.2	3.0
187	164	*Chico, Calif.	PC	5,837	5,752	14.8	2.7
188	169	*Rhinelander, Wisc.	NO	5,809	5,405	7.4	3.1
189	—	Rapid City, S. D. (1)	FL, NO	5,804	—	—	3.4
190	202	Cheyenne, Wyo.	FL	5,751	4,159	38.2	2.2
191	191	*Jefferson City, Mo.	OZ	5,733	4,413	29.9	2.4
192	211	*Santa Ana, Calif. (4)	BL	5,727	3,836	49.2	2.9
193	217	Waterloo, Iowa	OZ	5,693	3,661	55.5	2.3
194	—	*Minot, N. D. (1)	NO, FL	5,690	—	—	3.0
195	335	Bismarck, N. D. (4)	NO, FL	5,671	772	634.5	2.6
196	119	Casper, Wyo.	FL	5,581	8,227	—32.2	2.8
197	192	Lake Charles, La.	TT	5,546	4,394	26.2	2.6
198	204	*Riverside, Calif. (4)	BL	5,528	4,124	34.0	4.2
199	178	*Tuscaloosa, Ala.	SO	5,352	4,999	7.0	2.8
200	173	*Hoquiam, Wash. (4)	WC	5,322	5,176	2.8	3.9
201	180	*Hibbing, Minn. (4)	NO	5,254	4,884	7.5	3.1
202	176	*Oxnard, Calif. (4)	PC	5,174	5,020	3.1	3.6
203	218	Lafayette, La. (4)	TT	5,119	3,623	41.2	3.4
204	303	Muncie, Ind. (4)	LC	5,117	1,406	263.9	3.7
205	182	*Riverton, Wyo. (4)	FL	5,105	4,643	9.9	2.2
206	213	*Houghton, Mich. (4)	NO	5,085	3,830	32.7	3.1
207	360	Huntsville, Ala.	SO	5,054	479	—	4.2
208	197	*Laredo, Texas	TT	4,905	4,330	13.2	3.8
209	177	Albany, Ga.	SO	4,838	5,015	— 3.6	2.5
210	195	*Kinston, N. C.	PI	4,835	4,358	10.9	3.5
211	—	*Iowa City, Iowa (1)	OZ	4,821	—	—	4.3
212	208	*Natchez, Miss.	SO, TT	4,719	3,924	20.2	1.6
213	172	Birmingham, Ala.	SO	4,698	5,265	—10.8	2.4
214	220	*Iron Mountain, Mich.	NO	4,655	3,445	35.1	2.5
215	196	*Escanaba, Mich.	NO	4,645	4,356	6.6	4.0
216	183	*Gadsden, Ala.	SO	4,598	4,604	— .2	2.4
217	227	*Kokomo, Ind. (4)	LC	4,500	3,208	40.2	1.8
218	206	*International Falls, Minn.	NO	4,498	4,032	11.5	6.3
219	188	*Crescent City, Calif.	PC	4,471	4,458	.3	3.1
220	232	Grand Forks, N. D.	NO	4,455	3,110	43.2	2.3
221	194	*Astoria, Wash.	WC	4,430	4,379	1.1	3.3
222	199	*Paso Robles, Calif. (4)	PC	4,411	4,279	3.1	3.6
223	162	Gulfport, Miss. (4)	SO	4,377	5,878	—25.6	3.8
224	210	*Bloomington, Ill.	OZ	4,355	3,883	12.1	2.5
225	184	Valdosta, Ga.	SO	4,320	4,604	— 6.2	2.3
226	216	*Ephrata, Wash. (4)	WC	4,230	3,711	13.9	3.0
227	262	*Ottumwa, Iowa	OZ	4,193	2,224	88.5	2.0
228	198	*Burlington, Iowa	OZ	4,115	4,288	— 3.1	3.5
229	207	Worcester, Mass.	MO	4,074	3,979	2.3	2.4
230	187	*Cortez, Colo.	FL	4,070	4,510	— 9.8	2.6
231	—	Huron, S. D. (1)	NO	4,065	—	—	2.2
232	233	Rochester, Minn.	OZ	4,057	3,039	33.4	2.1
233	225	*Roseburg, Ore.	WC	4,001	3,322	20.4	2.3
234	229	*Marion, Ill. (4)	OZ	3,963	3,198	23.9	3.0
235	212	Dothan, Ala.	SO	3,888	3,831	1.4	2.5
236	253	*Norfolk, Nebr.	NO, FL	3,855	2,461	56.6	1.6
237	226	*Pine Bluff, Ark.	TT	3,838	3,218	19.2	1.2
238	215	*Athens, Ga.	SO	3,837	3,724	3.0	3.5
239	224	*Corvallis, Ore. (4)	WC	3,699	3,230	14.5	1.9
240	203	*Franklin, Pa. (4)	AL	3,669	4,132	—11.2	3.3
241	236	*Hazelton, Pa.	AL	3,650	3,008	21.3	3.0
242	214	*Prescott, Ariz.	BL, FL	3,643	3,726	— 2.3	.9
243	201	*Victoria, Texas	TT	3,628	4,217	—14.0	1.4
244	219	*Menominee, Wisc. (4)	NO	3,620	3,596	.6	1.8
245	306	*Clinton, Iowa	OZ	3,558	1,351	163.3	2.0
246	237	*Ogdensburg, N. Y.	MO	3,457	2,994	15.4	4.0
247	268	*El Dorado, Ark.	TT	3,443	2,118	62.5	1.6
248	384	*Anniston, Ala.	SO	3,348	131	—	3.1
249	222	Newport News, Va. (4)	PI	3,326	3,365	— 1.2	1.7
250	351	Watertown, S. D.	NO	3,322	586	—	1.4
251	231	*Manitowoc, Wisc.	NO	3,315	3,145	5.4	2.6
252	248	*Marion, Ind.	LC	3,286	2,632	24.8	1.7
253	240	*Ponca City, Okla.	CN	3,271	2,852	14.6	1.6
254	—	*St. Joseph, Mo. (1)	OZ, FL	3,212	—	—	1.4
255	234	New Bern, N. C.	PI	3,192	3,019	5.7	2.8
256	238	*Tupelo, Miss.	SO	3,167	2,928	8.1	1.6
257	245	*Santa Rosa, Calif.	PC	3,161	2,705	16.9	2.3
258	235	*Salisbury, Md. (4)	AL	3,150	3,019	4.3	3.9
259	—	Scottsbluff, Nebr. (1)	FL	3,146	—	—	2.1
260	241	*Liberal, Kansas	CN	3,079	2,798	10.0	2.5
261	228	*Gallup, N. M.	FL	3,044	3,207	— 5.1	2.1
262	244	*Enid, Okla.	CN	3,038	2,734	11.1	1.5
263	242	*Hickory, N. C.	PI	2,987	2,757	8.3	1.8
264	278	Fargo, N. D.	NO	2,866	1,861	54.0	2.4
265	271	*Clarksville, Tenn. (4)	OZ	2,832	2,060	37.4	1.9
266	258	Springfield, Mass. (4)	MO	2,832	2,300	23.1	2.0
267	247	*Ironwood, Mich.	NO	2,767	2,687	2.9	1.4
268	329	Stockton, Calif.	PC	2,752	883	311.7	1.5
269	—	*Grand Island, Nebr. (1)	FL	2,739	—	—	3.3
270	243	*Moultrie, Ga.	SO	2,730	2,748	— .7	1.5
271	223	Mobile, Ala.	SO	2,704	3,244	—16.7	4.7
272	246	*Bloomington, Ind.	LC	2,657	2,700	— 1.6	2.0
273	263	*Bemidji, Minn.	NO	2,603	2,220	17.2	1.9
274	249	Greenville, S. C.	SO	2,589	2,607	— .7	2.5
275	264	*Beckley, W. Va.	PI	2,577	2,198	17.2	1.3
276	239	*Montrose, Colo.	FL	2,563	2,856	—10.3	1.9
277	250	*Vernal, Utah	FL	2,557	2,562	— .2	1.9
278	252	*Laramie, Wyo.	FL	2,457	2,511	— 2.2	1.8
279	257	*Cody, Wyo.	FL	2,440	2,337	4.4	3.2
280	261	*Brainerd, Minn.	NO	2,439	2,235	9.1	1.9
281	—	*Santa Catalina, Calif. (1) (3)	PC	2,434	—	—	7.9

(Continued from preceding page)

Rank 1959	Rank 1958	City and State	Carrier	Passengers Boarded 1959	Passengers Boarded 1958	Percent Change 1959/58	Passengers Boarded Per Departure
282		Alexandria, La. (1)	TT	2,356			1.3
283	267	*Silver City, N. M.	FL	2,333	2,119	10.0	1.6
284	317	*Palmdale, Calif. (4)	PC	2,326	1,142	103.7	1.5
285	256	*Winslow, Ariz.	FL	2,288	2,362	— 3.2	1.5
286	304	*Myrtle Beach, S. C. (3)	PI	2,267	1,405	61.3	3.4
287		*North Platte, Nebr. (1)	FL	2,263			2.4
288	270	Amarillo, Texas	CN	2,254	2,068	8.9	2.1
289	260	Glens Falls, N. Y.	MO	2,247	2,266	— .9	2.3
290	254	Nashville, Tenn.	OZ	2,220	2,381	— 6.8	6.3
291	266	*Apple Valley, Calif.	BL	2,213	2,129	3.9	2.0
292	265	*Lufkin, Texas	TT	2,209	2,135	3.4	1.6
293	251	*Alamosa, Colo.	FL	2,208	2,531	—12.8	1.6
294	288	*Mattoon, Ill. (4)	OZ	2,167	1,638	32.2	2.4
295	272	*Rock Springs, Wyo.	FL	2,135	2,044	4.4	1.5
296		*Mitchell, S. D. (1)	NO	2,128			1.3
297	301	*Duncan, Okla.	CN	2,064	1,453	42.0	1.1
298	255	*Marysville, Calif.	PC	2,049	2,372	—13.7	1.4
299	273	Bartlesville, Okla.	CN	2,040	1,998	2.1	1.5
300	280	*Cape May, N. J. (3) (4)	AL	2,027	1,805	12.3	4.4
301	269	*Vicksburg, Miss.	SO	2,022	2,108	— 4.1	1.3
302	286	Owensboro, Ky.	OZ	1,958	1,662	17.8	1.8
303	299	*Richmond, Ind.	LC	1,951	1,485	31.3	1.1
304	283	*Harrison, Ark.	CN	1,922	1,769	8.6	1.5
305	276	*Borger, Texas	CN	1,921	1,895	1.3	1.5
306	291	*Coeur d'Alene, Idaho	WC	1,903	1,588	19.8	1.2
307	259	*Worland, Wyo.	FL	1,903	2,296	—17.2	1.5
308		*Hastings, Nebr. (1)	FL	1,888			1.7
309	296	Wilmington, Del.	AL	1,835	1,541	19.1	2.3
310	300	*Winona, Minn.	NO	1,830	1,480	23.6	1.3
311	294	*Paris, Texas	CN	1,827	1,571	16.2	1.4
312	290	*Ukiah, Calif.	PC	1,795	1,589	13.0	1.6
313	327	*Olympia, Wash.	WC	1,771	922	92.0	1.4
314	298	*Blythe, Calif.	BL	1,754	1,510	16.1	1.3
315	331	*Marshall, Texas	TT	1,751	859	103.8	1.3
316	282	*Muskogee, Okla.	CN	1,751	1,780	— 1.7	.9
317	297	*Burley, Idaho (4)	WC	1,740	1,515	14.8	1.2
318	315	*Greenwood, S. C.	SO	1,683	1,230	36.8	1.6
319	318	*Yankton, S. C.	NO	1,662	1,127	47.4	1.2
320	342	*Stillwater, Okla.	CN	1,659	679	144.3	2.9
321	293	*Williston, N. D.	FL	1,634	1,574	3.8	2.2
322	287	*Portsmouth, Ohio	LC	1,607	1,643	— 2.2	1.5
323		*Worthington, Minn. (1)	NO	1,603			1.6
324	370	*Greenwood, Miss.	SO	1,595	350	355.7	1.9
325	305	*Thief River Falls, Minn.	NO	1,594	1,378	15.6	1.3
326	279	*Laurel, Miss.	SO	1,585	1,829	—13.4	1.4
327		*Kearney, Nebr. (1)	FL	1,579			1.3
328	285	*Clintonville, Wisc.	NO	1,569	1,683	— 6.8	1.2
329	311	*Brownwood, Texas	TT	1,537	1,297	18.5	1.1
330	378	*Chadron, Neb.	FL	1,531	229		.8
331	289	*Zanesville, Ohio	LC	1,525	1,620	— 5.9	1.2
332	307	*Galveston, Texas	TT	1,521	1,346	13.0	1.1
333	312	*Dover, Ohio (4)	LC	1,501	1,297	15.7	1.1
334	295	*Red Bluff, Calif.	PC	1,457	1,556	— 6.4	1.1
335	284	Pendleton, Ore.	WC	1,430	1,687	—15.3	1.7
336	354	*Brookings, S. D.	NO	1,408	574	145.3	.9
337	314	*Guymon, Oklahoma	CN	1,387	1,236	12.2	1.1
338		Jackson, Wyo. (1)	FL	1,387			3.3
339	308	*Gunnison, Colo.	FL	1,378	1,344	2.5	1.2
340		*Appleton, Wisc. (1)	NO	1,366			3.7
341		*Redmond, Ore. (1) (4)	WC	1,342			2.6
342		*Grand Canyon, Ariz. (1)	BL	1,337			3.8
343	302	*London, Ky. (4)	PI	1,337	1,451	— 7.9	1.3
344	313	*Kingman, Ariz.	BL	1,335	1,238	7.8	1.0
345	324	*Trenton, N. J.	AL	1,310	957	36.9	1.1
346	309	*Cedar City, Utah	BL	1,303	1,325	— 1.7	1.7
347	325	Colorado Springs, Colo.	CN	1,247	950	31.2	1.8
348		Pierre, S. D. (1)	NO	1,245			1.1
349		*Sidney, Nebr. (1)	FL	1,244			1.1
350	322	Toledo, Ohio	LC	1,220	987	23.6	1.0
351		*Mankato, Minn. (1)	NO	1,201			1.1
352	310	*Marion, Ohio	LC	1,186	1,298	— 8.7	1.0
353	274	*Cape Girardeau, Mo.	OZ	1,141	1,982	—42.5	2.1
354		*Alliance, Nebr. (1)	FL	1,104			.7
355	319	*Miles City, Mont.	FL	1,086	1,085	.1	1.5
356	337	*Ontario, Ore. (4)	WC	1,064	727	46.3	1.2
357		*Beatrice, Nebr. (1)	FL	1,026			.9
358	382	*Valentine, Nebr.	FL	1,013	180		1.0
359	344	Sault Ste. Marie, Mich.	NO	1,011	667	51.5	2.9
360	377	Baltimore, Md.	AL	995	229	334.5	1.7
361	321	Spartanburg, S. C.	SO	989	1,017	— 2.8	.9
362	346	*McAlester, Okla.	CN	947	653	45.0	1.4
363	330	El Paso, Texas	TT	941	881	6.8	3.1
364		*Ashland, Wisc. (1)	NO	897			1.6
365		*McCook, Nebr. (1)	FL	896			.8
366	332	*Powell, Wyo.	FL	884	805	9.8	1.3
367		*Oxford, Miss. (1) (4)	SO	880			1.7
368	333	*Land O'Lakes, Wisc. (3)	NO	876	785	11.5	3.9
369	326	*Monte Vista, Colo.	FL	876	944	— 7.3	.7
370	347	Keene, N. H.	MO	872	625	39.5	1.6
371	334	*Wolf Point, Mont.	FL	846	777	8.8	1.3
372		Lubbock, Texas (1)	CN	844			1.6
373	372	*Dickinson, N. D.	FL	840	309	171.8	.8
374	328	*Camden, Ark.	TT	832	903	— 7.9	.9
375	320	*Southern Pines, N. C. (3) (4)	PI	793	1,023	—22.5	1.6
376	350	*Greybull, Wyo.	FL	768	586	31.0	1.0
377		*Devil's Lake, N. D. (1)	NO	764			.8
378	352	*Baker, Ore.	WC	759	578	31.3	1.0
379	379	*Ainsworth, Neb.	FL	748	227	229.5	.7
380		*Plainview, Texas (1)	CN	730			.9
381	353	*Ada, Okla.	CN	704	576	22.2	1.2
382		*Page, Ariz. (1)	BL	701			.9
383	345	*Sidney, Mont.	FL	688	654	5.1	1.1
384		*Sterling, Colo. (1)	FL	675			.6
385	341	*Lamar, Colo.	CN	671	690	— 2.8	1.2

(Continued on page 105)

PROGRESS WITHOUT PROFITS

(Continued from page 49)

tions eased up has grown into a kind of a crusade. And as usual the carriers themselves are not agreed on what they want to try to do or how they want to go about it. To succeed they need to do a selling job on the Board and on the industry, but they are not organized for it.

From the beginning the Board's policy has been that the local carriers should remain local in nature, and these subsidized local carriers should not compete with the non-subsidized trunks. This policy is perfectly sound and the locals should accept it as gospel. But they don't, or at least a good many of them, as indicated by their words and deeds, believe that the future of the local service carriers depends upon gradually evolving into regional trunk carriers. It is these words and deeds that scare the Board and makes it much more wary than it would otherwise be of easing up on some of its operating restrictions.

A number of the locals have been very aggressive in kicking off their smaller points. A carrier can easily depress traffic at any of the points it serves, and a number of the carriers have deliberately done so in preparation for a suspension proceeding before the Board. In a good many instances these tactics have been so apparent as to be noticed by the Board, and when these same carriers are actively trying to get nonstop authority between large cities it is easy to see where they are heading.

The cornerstone of their sales job to the Board is to prove that they intend to fulfill their local service assignment, and when the Board is convinced of this, it will be much more lenient in allowing the local carriers to expand their functions.

There is a good chance that the Board will follow an examiner's recent recommendation that its temporary 9.5 per cent return allowed on investment be boosted to 12.25 per cent. The same examiner recommended for special cases, where a carrier's investment is such as to require a different yardstick, that an "earning's floor" of three cents per mile be provided. The trouble is profit standards mean absolutely nothing if the mail rate section continues to throw out expense items wholesale, thereby failing to provide an opportunity for earnings *in fact*.

Until earnings become a fact instead of theory the Civil Aeronautics Board is postponing the day that self-sufficiency comes to the majority of our local airline operators.

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Statistical Analysis of Local Service

	Allegheny	Bonanza	Central	Frontier	Lake Central
SELECTED REVENUES AND EXPENSES (Dollars in 000's)					
Passenger Revenue	7,039	3,815	2,261	5,319	2,643
Total Non-Mail Revenue	7,501	4,056	2,483	5,992	2,793
Mail Pay	3,973	2,472	2,836	6,173	1,844
Total Revenue	11,474	6,529	5,319	12,165	4,637
Total Expense	11,381	6,358	5,409	11,735	4,431
Profit (or Loss)	92	171	(90)	430	206
Break-Even Need	3,881	2,302	2,926	5,743	1,638
SELECTED OPERATING STATISTICS					
Revenue Miles (000)	6,816	4,455	4,162	8,908	3,446
Originating Passengers	562,040	226,574	165,629	306,676	227,182
Enplaned Passengers	577,106	232,047	171,813	342,686	230,610
Revenue Passenger Miles (000)	98,878	55,694	32,324	78,304	36,194
Passenger Load Factor (%)	47.2	45.1	37.1	38.4	41.5
Revenue Ton-Miles (000)	10,190	5,541	3,379	8,735	3,722
Ton-Mile Utilization Factor (%)	46.4	44.8	33.8	44.1	45.1
REVENUE AND EXPENSES—Cents Per Revenue Mile					
Revenues:					
Passenger	103.27	85.63	54.33	59.71	76.71
Total Non-Mail	110.04	91.05	59.65	67.27	81.05
Mail Pay	58.29	55.50	68.14	69.29	53.52
Total Revenue	168.33	146.55	127.79	136.56	134.57
Expenses:					
Flying Operations	52.40	39.21	39.13	39.95	41.32
Total Maintenance	34.76	30.91	21.88	25.60	21.08
Passenger Service	7.25	6.20	6.18	6.79	6.91
Aircraft and Traffic Service	37.77	32.03	39.37	35.15	35.25
Promotion and Sales	16.95	10.55	11.16	8.60	10.31
General and Administrative	8.97	11.57	8.12	7.92	10.05
Depreciation and Amortization	8.87	12.24	4.11	7.73	3.66
Total Expense	166.97	142.71	129.95	131.74	128.58
Profit (or Loss)	1.36	3.84	(2.16)	4.82	5.99
Break-Even Need	56.93	51.66	70.30	64.47	47.53
SELECTED REVENUE AND EXPENSES—Cents Per Ton-Mile					
Total Non-Mail Revenue	73.61	73.21	73.47	68.60	75.04
Total Expense	111.69	114.75	160.06	134.34	119.05
Break-Even Need	38.08	41.54	86.59	65.74	44.01
ADDITIONAL OPERATING STATISTICS					
Scheduled Miles (000)	7,204	4,383	4,137	8,982	3,504
Completion Factor (%)	93.9	99.2	98.5	98.1	97.1
Average Passenger Load	14.5	12.5	7.8	8.8	10.5
Average Journey:					
Originating Passenger	176	246	195	255	159
Enplaned Passenger	171	240	188	229	157
Revenue Ton-Miles:					
Passenger (000)	9,393	5,284	3,071	7,439	3,438
U. S. Mail	145,573	80,783	92,766	288,205	50,173
Express and Freight	604,885	133,680	188,895	903,657	210,388
Excess Baggage	46,331	42,082	27,009	104,565	23,249
Average Ton Load	1.49	1.24	0.81	0.98	1.08
Ton-Miles of Surface Mail	8,274	37,297	15,450	116,335	1,665
Total Revenue Hours	44,672	26,228	28,348	58,873	24,751
Average Flying Speed (MPH)	152.6	169.9	146.8	151.3	139.2
Type(s) of Aircraft Operated	540/202/DC-3	F-27/DC-3	DC-3	340/DC-3	DC-3
Number of Aircraft Operated	25	16	15	30	12
Daily Aircraft Utilization	5:04	5:30	5:19	6:26	6:01
Unduplicated Route Mileage in Operations	2,143	2,181	3,737	6,692	2,175
Daily Route Mile Turnover (4th Quarter)	8.7	5.6	3.0	4.0	4.7
Tons of Cargo Carried:					
U. S. Mail	970.6	324.7	600.1	1,025.1	409.8
Express	1,712.4	200.0	319.4	421.4	1,408.5
Freight	2,083.9	556.8	767.4	2,324.1	.....
Gallons of Fuel Consumed (000)	7,586	3,936	3,039	7,098	2,623
Number of Actual Departures	79,852	35,878	51,905	93,168	49,036
Departures Per Day	219	98	142	255	134
Per Actual Departure:					
Revenue Miles	85.4	124.2	80.3	95.6	70.3
Enplaned Passengers	7.2	6.5	3.3	3.7	4.7
Revenue Passenger Miles	1,238	1,552	623	840	738
Number of Employees (Average)	948	480	489	1,164	448
Per Employee:					
Revenue Miles	7,190	9,281	8,512	7,653	7,692
Enplaned Passengers	609	483	350	294	515
Revenue Passenger Miles (000)	104.3	116.0	66.1	67.3	80.8
ADDITIONAL FINANCIAL DATA					
Ratio-Total Expense to Non-Mail Revenue	1.52	1.57	2.18	1.96	1.59
Non-Mail Revenue Per:					
Actual Departures (Dollars)	93.93	113.06	47.84	64.32	56.96
Employee (Dollars)	7,912	8,451	5,077	5,148	6,234
Passenger Revenue Per:					
Originating Passenger (Dollars)	12.62	17.05	13.92	17.76	11.72
Enplaned Passenger (Dollars)	12.29	16.78	13.41	15.93	11.55
Revenue Passenger Miles (Cents)	7.16	7.01	7.16	6.96	7.42

*Estimated.

Airline Operations For 1959

Mohawk	North Central	Ozark	Pacific	Piedmont	Southern	Trans-Texas	West Coast	Total or Average
8,257	11,388	6,794	5,915	7,367	3,248	4,439	4,604	73,089
8,786	12,178	7,269	6,731	8,015	3,507	4,896	4,809	79,016
2,082	6,162	3,168	2,502	3,192	2,631	3,071	3,699	43,806
10,868	18,340	10,437	9,233	11,207	6,138	7,967	8,507	122,822
10,653	18,163	10,429	8,996	11,734	6,085	7,638	9,064	122,078
214	177	8	236	(526)	53	329	(557)	744
1,868	5,985	3,160	2,265	3,719	2,578	2,742	4,256	43,062
5,708	13,559	8,544	6,010	8,064	4,809	7,338	5,326	87,147
560,260	911,916	539,062	466,238	480,913	255,039	283,588	343,589	5,328,706
606,382	957,136	547,883	491,600	522,630	258,180	298,387	412,864	5,649,324
109,862	159,835	93,860	104,878	102,483	45,583	67,218	72,021	1,057,134
54.8	44.7	43.9	54.4	45.2	36.6	39.9	45.0	44.9
11,021	16,725	9,741	10,332	10,362	4,793	7,210	7,160	108,913
54.9	45.8	46.3	52.9	46.0	37.5	41.0	44.7	45.7
144.66	83.99	79.52	98.41	91.36	67.53	60.49	86.44	83.87
153.93	89.81	85.08	111.99	99.39	72.93	66.72	90.28	90.67
36.48	45.45	37.08	41.62	39.58	54.71	41.85	69.45	50.27
190.41	135.26	122.16	153.61	138.97	127.64	108.57	159.73	140.94
51.56	41.02	36.84	46.92	44.64	38.49	32.60	48.50	42.26
40.66	26.33	24.74	33.98	30.98	24.88	20.61	38.18	28.63
8.29	7.06	6.88	7.10	7.46	6.33	5.28	8.86	6.98
43.34	37.36	34.30	33.01	36.19	35.47	27.76	39.15	35.79
14.71	10.15	8.62	8.52	9.78	10.18	9.32	12.26	10.66
13.91	5.23	6.22	8.77	6.33	7.29	5.41	9.70	7.86
14.19	6.80	4.47	11.38	10.12	3.90	3.11	13.53	7.90
186.66	133.95	122.07	149.68	145.50	126.54	104.09	170.18	140.08
3.75	1.31	0.09	3.93	(6.53)	1.10	4.48	(10.45)	0.86
32.73	44.14	36.99	37.69	46.11	53.61	37.37	79.90	49.41
79.72	72.81	74.63	65.15	77.35	73.17	67.90	67.16	72.55
96.66	108.59	107.06	87.07	113.24	126.95	105.93	126.59	112.09
16.94	35.78	32.43	21.92	35.89	53.78	38.03	59.43	39.54
5,736	13,623	8,800	5,523	7,881	4,886	7,309	5,357	87,324
95.0	97.2	96.2	98.2	98.6	97.3	98.5	97.4	97.2
19.2	11.8	11.0	17.4	12.7	9.5	9.2	13.5	12.1
196	175	174	225	213	179	237	210	198
181	167	171	213	196	177	225	174	187
10,437	15,432	8,917	9,963	9,736	4,330	6,386	6,841	100,668
147,715	416,537	166,118	174,320	184,524	125,109	227,920	99,589	2,199,332
394,260	758,501	605,287	155,300	355,486	295,662	545,470	183,654	5,335,125
42,531	118,003	53,061	38,838	85,898	41,985	51,264	35,963	710,779
1.93	1.23	1.14	1.72	1.28	1.00	0.98	1.34	1.25
14,499	100,336	15,900	44,938	69,208	8,468	50,616	21,362	504,348
36,544	93,319	59,552	35,705	50,238	33,202	46,005	34,626	572,063
156.2	145.3	143.5	168.3	160.5	144.8	159.5	153.8	152.3
440/240 DC-3	340/DC-3	DC-3H	F-27/202 DC-3	F-27/DC-3	DC-3	DC-3M	F-27/DC-3	
22	37	24	23	26	19	25	20	294
5:10	7:15	6:48	4:27	4:56	5:22	5:17	4:45	5:39
2,428	5,535	4,970	2,090	2,752	3,179	4,795	3,791	46,468
6.5	6.7	4.8	7.8	7.3	4.8	4.6	4.9	5.3
674.5	2,428.4	1,003.3	1,105.1	846.5	709.0	978.0	462.7	11,537.4
1,013.4	3,541.9	1,878.8	422.6	874.0	738.0	573.0	236.1	13,339.5
1,254.8	1,056.2	2,017.5	599.8	878.6	875.9	1,633.1	630.4	14,678.5
5,956	10,701	6,071	6,725	8,158	3,533	4,668	5,898	75,992
55,362	161,058	97,305	64,563	92,368	57,147	82,157	66,187	985,986
152	441	267	177	253	157	225	181	2,701
103.1	84.2	87.8	93.1	87.3	84.2	89.3	80.5	88.4
11.0	5.9	5.6	7.6	5.7	4.5	3.6	6.2	5.7
1,984	992	965	1,624	1,110	798	818	1,088	1,072
945	1,893	1,104	668	1,018	656	779	848	11,440
6,040	7,163	7,739	8,997	7,922	7,331	9,420	6,281	7,618
642	506	496	809	513	394	383	487	494
116.3	84.4	85.0	157.0	100.7	69.5	86.3	84.9	92.4
1.21	1.49	1.43	1.34	1.46	1.74	1.56	1.89	1.54
158.69	75.61	74.71	104.26	86.77	61.38	59.59	72.65	80.14
9,297	6,433	6,585	10,077	7,873	5,347	6,285	5,670	6,907
15.06	12.73	12.72	14.02	15.54	12.81	15.90	13.60	14.02
13.89	12.11	12.52	13.23	14.29	12.66	15.10	11.29	13.22
7.69	7.40	7.38	6.32	7.41	7.22	6.82	6.45	7.14

—(FLIGHT MAGAZINE Compilation by Ray & Ray.)

Local Service Airline Schedule Pa

Each line represents a round trip sche
days per week, based on schedules in effe

EXPANSION AT A GLANCE can be seen by comparing the large 1960 map with this small map, which shows the local service airline schedule pattern as of May, 1955. This 5-year expansion has resulted

edule Pattern, May, 1960

nd trip scheduled at least 5
edules in effect in May, 1960.

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FLIGHT MAGAZINE

Map and Data by E. H. & M. A. Pickering

Local Service Airline Schedule Pattern Operated W

Red lines show Fairchild F-27 (Propjet) Round Trips

Green lines show Eland Convair 540 (Propjet) Round Trips

Blue lines show Martin or Convair (Piston) Round Trips

ted With Equipment Larger Than DC-3, May, 1960

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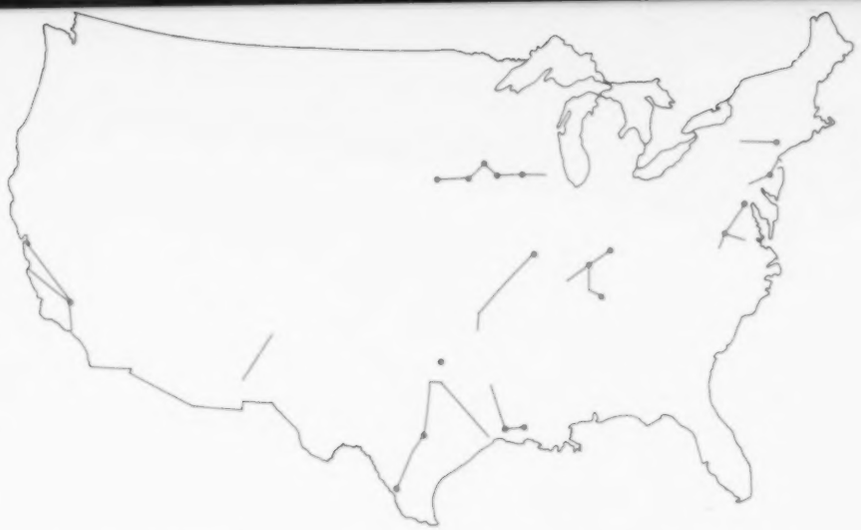
Map and Data by E. H. & M. A. Pickering



New Routes and 19 Cities Added During May, 1955-May, 1956

New Routes and 19 Cities Added During May, 1956-May, 1957

New Routes and 22 Cities Added During May, 1957-May, 1958

Maps Picture Growi Requiremen

THE maps on these pages offer a graphic reason for the steady growth in subsidy requirements of the 13 local service airlines over the past five years. They show the new routes and new cities to which service has been added during each of the five years, plus a final map that combines the total system additions for the full five-year period. During the five years, the local airlines added service to 152 cities. Service over 18,000 new route miles was added, an increase of some 65%.

These maps show actual new routes and new cities added to the local airline network between the periods of the trip frequency maps appearing in the Annual Local Air Service Issues of FLIGHT MAGAZINE beginning with the 1955 issue.

Each dot on the maps represents a city newly served by one of the locals during the period covered by the map. Each line represents a new route or route pattern served by a local during the period covered by each map. The map on the lower right shows the five-year total additions, representing the sum of the other five maps.

A dot appearing by itself (without a line leading to or through it) is a newly served city added to an existing route. Lines without dots represent new routes served between cities already served on routes previously operated by the carrier.

As the maps each year are based on schedules to be operated during May of each year, the period of time represented by each map is from May of one year to May of the next year. This corresponds closely to the federal fiscal years (July 1st through the following June 30th) upon which requests for subsidy appropriations are based. Thus the CAB's request for subsidy for local service operation currently before Congress covers the sum estimated to be needed for the year beginning July 1, 1960 through June 30, 1961. The request is for a sum greater than that required for the year just ending. The principal reason for the increase is shown in the map to the right indicating the new routes and new cities served in May, 1960 that were not being served in May, 1959.

In general, only two other factors enter into the demand for increased subsidies. One of these is the amount of operations conducted by newer and larger aircraft.

ng Subsidy
ts For Local Service

The remaining indicator of increased subsidy requirements is incorporated in rising labor costs and price increases for such items as parts, supplies, rents, etc.

All of these three items contributing to increased operating costs are subject to offsetting increases in non-subsidy revenues. Increasing traffic over established routes, new routes that meet or offset their added costs immediately, additional traffic generated by the appeal of new planes, and increased productivity of personnel and equipment combine to substantially offset the added expenses for operating the new routes, operating into new cities, and operating newer and larger aircraft. The amount by which the increasing non-subsidy revenues fail to cover the increasing operational costs, however, is reflected in the need for increased subsidy.

Prime instigator of increased subsidy is the added operations caused by new route additions. New routes are seldom as productive in their early stages of operation as are the routes over which an airline has several years of experience. During the period required to initiate operations and establish an identity in the market, an airline operating over new routes seldom generates sufficient additional revenues to offset the additional expenses involved, hence the subsidy requirement. If new routes are extended into sparsely settled areas, then subsidy requirements may remain high over a longer period of time. Many recent route awards have been in such territory.

In total, the new services represented by the maps on these pages are the strongest reason for increased subsidies. When these annual additions level off upon the completion of the area-wide cases (six of 11 have now been decided) and when the time required to establish travel trends over these additions begins to make itself felt, and when the effect of use of more efficient aircraft has made its impression, then, and only then, will total subsidy requirements begin to diminish.

There is no "culprit" causing subsidies to increase. There is only the public demand for a more widespread availability of local airline service. The CAB, prodded by Congressional urging, has been meeting this demand, as shown by these maps.

New Routes and 43 Cities Added During May, 1958-May, 1959

New Routes and 49 Cities Added During May, 1959-May, 1960

Combined New Routes and 152 Cities Added During 1955-1960

CAB Members Speak Their Views

On Subsidy

CHAIRMAN GILLILLAND: "Subsidy is the main problem of the locals. New routes and new cities are the main reason for subsidy increase. This does not mean we can place a lid on further expansion. We have a duty to avoid being stringent in further area cases simply because subsidy has increased as a result of previous decisions. Each part of the nation is entitled to the same treatment. These may be temporary increases, but we must look to long term." From recent FLIGHT MAGAZINE interview.

MEMBER BOYD: "Subsidy is a major problem, brought about by award of additional routes, cities, and re-equipment. I consider the value of these improvements as being worth while, however." From recent FLIGHT MAGAZINE interview.

"The cost to the operator of short-haul passenger service generally is higher than the revenue produced. This is what the local service carriers are now engaged in and is the reason so much subsidy is required to maintain their operation." From speech of May 16, 1960.

On Equipment

CHAIRMAN GILLILLAND: "It will be necessary within your capabilities to improve the speed, the comfort, and the convenience of the service that you provide. The alternative, of course, is that the increased traffic will be lost to your competitor, surface transportation." From speech of April 28, 1960.

VICE CHAIRMAN GURNEY: "Until stronger cities are added to their routes, some locals can not justify new equipment. Cities being transferred from trunks to locals must realize that the strengthening they add to the local's system will help justify a change to newer, more modern equipment." From recent FLIGHT MAGAZINE interview.

On Use-It-Or-Lose-It Policy

VICE CHAIRMAN GURNEY: "The Board must use its best judgment in resolving use-it-or-lose-it cases. It must consider other modes of transportation available. The Board must be strict because of subsidy needs. For subsidy is the 'taxpayers' money.' Each case must be judged on an individual basis. Airlines must make an all out effort on each segment. The Board seeks a goal of two daily round trips minimum for each local service city. The burden will be on the cities, however, to justify continued service." From recent FLIGHT MAGAZINE interview.

MEMBER BOYD: "Our policy may have to be revised, only time will tell. These matters can't be turned over to an IBM computer; we must use good judgment. Our present policy is a guide, it is not automatic." From recent FLIGHT MAGAZINE interview.

On Local Service Cases

CHAIRMAN GILLILLAND: "I believe that after the area cases are over there will be still more numerous smaller cases." From recent FLIGHT MAGAZINE interview.

VICE CHAIRMAN GURNEY: "Future service cases will take less time, once the area proceedings are out of the way." From recent FLIGHT MAGAZINE interview.

On Fares

CHAIRMAN GILLILLAND: ". . . the ability to reduce subsidy by increasing fares is restricted by the deterrent effect on short-haul traffic." From speech of April 28, 1960.

MEMBER BOYD: ". . . it appears doubtful to me that passengers can be removed from private automobiles to commercial air carriers by raising fares." From speech of May 16, 1960.

Your City's Role In CAB Cases

By E. H. PICKERING

EDITOR'S NOTE: *This article is intended to give cities and towns a helpful understanding of the procedures involved in Civil Aeronautics Board cases. It includes suggestions for effective community representation before CAB. The author is an aviation research consultant who has aided cities and airlines in over 20 major CAB cases during the last 15 years.*

AS of mid-1960 a casual count indicates that at least 350 cities in the U. S. are involved in airline route cases before the Civil Aeronautics Board.

To these cities and their chambers of commerce, air service hearings may seem long, drawn out, complicated and even costly, but these cases do have one major objective — to provide the most and best airline service possible for each city, commensurate with the traffic potential of the community, the subsidy cost to the taxpayers and the assurance of a system of healthy and dependable individual airlines.

Failure of the CAB to provide for the true air service needs of an individual community is usually traceable to the failure of the community itself either to follow all of the procedural steps available or to inability of the community to be sufficiently articulate in expressing its specific needs.

The procedural steps discussed in this article are the major ones only. In most cases, cities will encounter a need for only these. However, in any particular case, variations of these steps are quite possible — some may even be eliminated. In some cases the order of certain of these steps may be altered. Occasionally an entirely new procedure is brought out. Use this as a guide, but do not be disturbed if a change is encountered.

Seldom is a CAB case concerned only with the needs of a single community. Anywhere from one to several dozen cities generally become involved, due to the complexities of airline route structures and the interrelationship of interests between communities (called "community of interest").

Applications For Service

Route cases usually begin with the filing of an application (either on behalf of a city or by an airline). This application, which follows a form prescribed in the Economic Regulations of the CAB, merely serves to properly identify the applicant, to state the specific service desired, preferably by naming an exact route pattern of terminals and intermediate points, to set forth the principal need that will be met by the granting of the application, and a "catch-all" clause that will permit the CAB to grant a variation of the request if it deems a variation needed. A signed copy and 19 additional copies of the application are filed by mailing to: Docket Section, Civil Aeronautics Board, Washington 25, D. C. Copies may also be served upon any airlines that might be affected and upon any other communities named in the application or that might be affected by the application.

This application, if it is the only one pending in its area of geographic interest, becomes a sort of nucleus that in a relatively short period of time will be likely to attract related applications of airlines and other cities until, by CAB order, the whole group becomes active.

The CAB has received and assigned docket numbers to some 12,000 applications in its 22-year history. The pace at which applications are filed increases year by year. In order to reduce the number of cases for processing, the CAB consolidates applications of related interests and geographical scope. Thus from two to 50 or more applications may all be considered and decided in a single "area" case.

Petition To Intervene

Cities that do not have an application pending may file applications during the formative stage of such a proceeding or, if a pending application by another community or by an airline has already proposed the desired service pattern, then a city may petition to intervene on the basis of having substantial interests that can only be protected and fully represented by being a party to the proceeding.

As with Applications, Petitions to Intervene are filed with the Docket Section of the Civil Aeronautics Board (one signed copy and 19 other copies), and are also furnished all other parties in the case (these parties will be listed either in the Board Order establishing the case, or in the Notice of Prehearing Conference). Once an Application or Petition to Intervene is filed, all further information from the Board will be mailed to the applicant or intervenor as they become a party to the case and are added to the official mailing list.

Prehearing Conference

Once a case becomes active, a date is established by the Chief Examiner for a Prehearing Conference — merely a few hours' get-together to determine the views of the parties as to the geographic boundaries of the case, the material expected to be furnished by each party, and the material to be stipulated as factual and without need of sponsorship by witnesses (such as Census figures, CAB traffic data, etc.). Civic parties need attend a Prehearing Conference only if their desires on any of the above items are in conflict with those of other parties. Attendance is suggested in any case, however, if convenient, in order to get the "feel" of the case and to meet the other participants.

At the Prehearing Conference, the CAB's Bureau of Air Operations (a division of the staff of the Board), represented by a staff attorney known as Bureau Counsel, takes an active part, usually with the intent of developing a full case that adequately covers the data and positions of each party and of the Bureau itself, upon all of which the Board can make a just finding. Bureau Counsel is considered a party to the case just as are the cities and the airlines.

An Examiner is assigned to the case by the office of the Chief Examiner from the staff of hearing examiners. The Examiner is the presiding official at the Prehearing Conference, at the Hearings and until his decision is released. His position is autonomous, his decisions on the conduct of the case and the admission of evidence are final except on appeal to the Board itself.

Prehearing Conference Report

Generally between a week and a month after the close of the Prehearing Conference, the Examiner will issue a *Prehearing Conference Report* which is exactly what the name implies — a statement of the positions of the various parties. This report also sums up the items of conflict on which the Board must rule prior to further proceedings.

Consolidation Order

All prior steps are merely preliminaries — important to a degree, and necessary to an orderly establishment of issues, but just "laying out the course" — the "starting gun" begins with the issuance of the Board's Consolidation Order, for this order usually determines just which Applications will be heard, which Petitions to Intervene will be granted, the exact geographical area of the case, and a ruling on conflicting requests concerning controversial matters that are to be considered or eliminated as issues in the case.

As a result of the Consolidation Order, each party to the case is put on notice as to what stands to be gained or lost in the final decision. All further steps will go toward defending against possible loss or aimed at maximum gain — or, possibly, a combination of both.

If the Examiner's Report of Pre-

Selected Statistics Show 1958

		Alaska Airlines	Alaska Coastal	Cordova Airlines
Revenues				
Passenger	1959	2,620,280	962,310	147,645
	1958	2,064,943	751,374	120,378
Total Non-Mail Revenue	1959	5,502,801	1,165,925	624,221
	1958	3,831,026	964,269	317,173
U. S. Mail	1959	667,835	112,638	118,498
	1958	596,312	116,517	104,483
Federal Subsidy	1959	1,789,409	755,293	448,044
	1958	1,822,899	349,828	415,749
Total Mail Pay	1959	2,457,244	867,931	566,542
	1958	2,419,211	466,345	520,232
Total Operating Revenue	1959	7,960,045	2,033,856	1,190,763
	1958	6,250,237	1,430,614	937,405
Total Operating Expense	1959	8,175,199	2,044,898	1,162,133
	1958	6,338,166	1,499,454	985,296
Profit or (Loss)	1959	(215,154)	(11,042)	28,630
	1958	(87,929)	(68,840)	(47,891)
Traffic Data				
Revenue Plane Miles	1959	3,635,693	1,088,286	704,949
	1958	2,823,124	939,991	488,483
Originating Passengers	1959	109,543	55,168	13,592
	1958	72,049	51,458	11,466
Passenger Miles (000)	1959	91,058	5,771	2,483
	1958	38,686	4,610	1,937
Available Seat Miles (000)	1959	156,764	10,048	6,292
	1958	100,307	7,467	4,589
Passenger Load Factor (%)	1959	58.1	57.4	39.5
	1958	38.6	61.7	42.2
Average Length of Journey	1959	831	105	183
	1958	537	90	169
Total Reveune Ton Miles	1959	13,755,627	683,801	853,698
	1958	7,418,435	569,649	483,056
Available Ton Miles	1959	24,499,116	1,093,717	1,834,920
	1958	17,232,929	878,709	996,192
Ton Mile Utilization Factor	1959	56.1	62.5	46.5
	1958	43.0	64.8	48.5
Number of Departures	1959	17,093	16,456	7,963
	1958	15,747	15,799	5,903
Employes (as of Dec. 31)	1959	441	149	60
	1958	403	129	53

hearing Conference did not establish dates for further procedural steps, then a notice from the Examiner setting these dates can be expected shortly after release of the Board's Consolidation Order.

Exchange Of Direct Exhibits

Depending upon the complexity of the case, a period of from 30 to 150 days is allowed for preparation and exchange of Direct Exhibits (sometimes termed Exhibits-in-Chief). These Exhibits should contain all relevant factual data upon which a participant's case will be based — the items of fact that will be used as proof to support subsequent arguments in favor of the services sought. These Exhibits should be reproduced in some manner (mimeographed, multilithed, or printed) that will permit exchange of identical copies with all other parties. Depending upon the number of parties to the case, this can be from 15 to 300 copies. At least one copy is required by the Examiner on the date set for exchange, two or three copies to Bureau Counsel, one or more copies to each carrier party, and one to such other civic parties as are directly affected or as may request copies. Exhibits may be mailed in advance of the date set for exchange, but are required by no later than the established date. Late submission, without adequate reason, may find the Exhibits rejected — although this seldom is strictly applied to civic parties so long as no delay of further procedures is caused.

At the time of the hearing, as the party prepares to present its case, two copies of all Exhibits (fully corrected as need be) should be presented to the Examiner.

Supplemental Or Special Exhibits

Although not often required of civic parties, additional Direct Exhibits are sometimes required, sometimes permitted, containing material not covered in the Direct Exhibits — usually with reference to results of a subsequent event not foreseen by the party or parties at the time of submission of Direct Exhibits. These Supplemental Exhibits must be furnished to all parties receiving the Direct Exhibits.

Rebuttal Exhibits

Rebuttal Exhibits are generally prepared only by carrier parties, but may be resorted to by any party that wishes to present facts to oppose material contained in Direct Exhibits of an opposing party. Usually, Rebuttal Exhibits are exchanged shortly before the opening date of the Hearing. As with all material submitted during the case, copies are furnished to the same parties as were provided with the Direct Exhibits, or additional parties requesting them.

The Hearing

Civil Aeronautics Board Hearings are generally considered as quasi-legal. They follow general rules for conduct of legal cases, but in a relaxed and rather informal manner. The Examiner is the judge, a court reporter records the words that are spoken, witnesses testify under oath, and each party can be both defendant and prosecutor. These hearings can drone on and become boring after a time, but they can also have sharp verbal dueling, and many a hearty laugh.

1958-59 Local Service Progress in Alaska, Hawaii and Caribbean Area

	Alaska Carriers					Hawaii Carriers		Caribbean Carriers	
	Ellis Air Lines	Northern Consolidated	Pacific Northern	Reeve Aleutian	Wien Alaska	Aloha Airlines	Hawaii Airlines	Caribbean Atlantic	Mackey Airlines
	643,947	853,017	7,015,239	1,233,759	1,127,384	3,524,975	5,951,173	2,720,896	1,794,970
	518,239	768,983	6,261,805	1,179,550	863,676	2,093,996	4,969,871	2,033,758	1,215,097
	796,912	1,538,940	8,238,648	1,991,150	2,963,180	3,712,153	7,657,484	2,951,783	1,873,784
	661,344	1,350,836	7,478,186	1,954,477	2,508,483	2,297,491	6,932,772	2,206,554	1,303,096
	61,715	494,749	817,224	423,963	590,109	21,528	39,854	31,435	0
	59,273	383,340	783,235	375,468	496,944	7,822	46,697	27,178	0
	422,924	916,440	2,072,326	0	1,069,004	0	168,200	0	0
	426,859	657,621	2,106,350	315	1,060,220	109,150	0	0	0
	484,639	1,411,189	2,889,550	423,963	1,659,113	21,528	208,054	31,435	0
	486,132	1,040,961	2,889,585	375,783	1,557,164	116,972	46,697	27,178	0
	1,281,551	2,950,129	11,128,198	2,415,113	4,622,293	3,733,681	7,865,538	2,983,218	1,873,784
	1,147,476	2,391,797	10,367,771	2,330,260	4,065,647	2,414,463	6,979,469	2,233,732	1,303,096
	1,189,607	2,890,740	10,865,748	2,204,318	4,905,448	3,551,990	7,718,543	2,482,738	1,732,523
	1,030,817	2,362,160	9,562,553	1,923,102	4,218,457	2,439,130	6,817,768	2,014,074	1,483,365
	91,944	59,389	262,450	210,795	(283,155)	181,691	146,995	500,480	150,261
	116,659	29,637	805,218	407,158	(152,810)	(24,667)	161,701	219,658	(180,269)
	842,523	1,333,253	4,299,048	1,004,507	3,178,007	2,131,644	3,446,837	1,255,914	943,763
	720,342	1,344,214	4,097,793	978,422	2,933,024	1,579,080	3,307,089	1,064,057	904,837
	58,799	26,937	120,713	13,528	41,771	288,385	474,701	334,731	121,750
	52,521	21,784	112,871	12,745	35,087	183,005	409,053	253,421	90,558
	3,679	8,799	113,389	12,153	14,063	41,689	88,616	23,292	23,859
	3,106	6,926	105,595	10,171	11,636	24,781	88,043	17,675	18,184
	6,430	20,456	231,518	32,564	51,323	68,960	141,161	35,302	52,006
	5,301	15,117	210,088	24,822	54,083	44,216	134,792	29,749	45,376
	57.2	43.0	49.0	37.3	27.4	60.5	62.8	66.0	45.9
	58.6	45.8	50.3	41.0	21.5	56.0	65.3	59.4	40.1
	63	327	939	898	337	145	187	70	196
	59	318	936	798	332	135	215	70	201
	430,970	2,048,755	17,012,783	2,789,607	4,689,511	3,458,768	9,209,421	2,542,534	2,608,723
	368,597	1,749,888	15,937,354	2,584,092	3,790,931	2,092,048	9,172,730	1,913,443	2,020,447
	643,108	3,355,049	28,487,831	4,708,750	8,208,098	6,154,391	14,993,366	3,580,721	5,707,009
	620,342	2,855,102	26,320,673	4,539,223	6,582,017	3,724,437	14,696,648	2,953,530	4,892,719
	67.0	61.1	59.7	59.2	57.1	56.2	61.4	71.0	45.7
	59.4	61.3	60.6	56.9	57.6	56.2	62.4	64.8	41.3
	21,590	14,255	10,278	4,182	24,711	18,819	27,793	18,076	9,967
	19,391	13,511	10,806	4,040	17,792	14,812	25,888	14,511	9,176
	116	169	612	88	252	332	752	370	134
	93	153	589	87	247	225	596	265	119

—(Ray & Ray Compilation.)

Route cases in which many cities are involved are generally held in two or more sessions. One or more of these sessions may be held "in the field" at a city, or at cities, in the area involved. This is planned as an aid to civic parties desiring to produce witnesses and participate as fully as possible without incurring the costs and time involved in traveling to Washington.

After the close of the "field" hearings, the proceeding usually re-opens in the CAB's building in Washington (the Universal Building on Connecticut Ave., NW) at which time the airline parties present their case. Some cities prefer to present their own cases during the Washington session, and are usually permitted to do so. Cities with a vital stake often are represented at the Washington session to hear and cross-examine airline witnesses.

It is not necessary to be an attorney to present a case in a CAB proceeding. Many cities are represented by a Chamber of Commerce official, or a city official who guides his case, acts as a witness, and cross-examines other parties. However, legal counsel or substantial experience in Board proceedings is frequently of benefit to the best presentation of a case.

Direct Testimony By Witnesses

When witnesses desire to add to, enlarge upon or explain material contained in any Exhibits, most Examiners request that such comment, called "Direct Testimony," be reduced to writing and submitted several days prior to taking the witness stand. Copies of Direct Testimony should also be furnished to patries served with Exhibits. A small amount of verbal "explanation" of material contained in Exhibits and written testimony is sometimes permitted, to clarify and provide a better understanding.

Principally, witnesses are offered to sponsor all material contained in all Exhibits and written Direct Testimony. These witnesses (or a single witness) may be cross-examined by other parties, by Bureau Counsel, and may even be questioned by the Examiner to clarify testimony. In the case of civic witnesses, this cross-examination is generally not antagonistic unless the position of the witness is antagonistic to that of some other party. Civic parties are encouraged to bring forth witnesses whose testimony will contribute to a better understanding of the needs of the community. Testimony that is repetition of written or Exhibit material is frowned upon.

Material in Exhibits that is not sponsored, that cannot meet the test of cross-examination or that is not basically factual is subject to being stricken from the record.

Brief To The Examiner

After the close of the Hearings, the Examiner will announce a date upon which Briefs will be submitted. These are Briefs to the Examiner. They are generally limited in bulk to 75 or 100 pages, although civic parties seldom need this amount of space.

Briefs serve only one purpose — to argue the merits of the service desired by the party, based on the record's factual evidence. (The "record" is the Exhibits and testimony of all parties.)

Copies of Briefs are sent to the Examiner, to Bureau Counsel and are also served all parties to whom Exhibits were furnished. A signed copy and 19 additional copies are also sent to the Docket Section, CAB.

A Brief is submitted by Bureau Counsel, at the same time as the Briefs of all other parties, and is carefully studied, for it represents the official position of the Board's Bureau of Air Operations.

Initial Decision Of The Examiner

It is the duty of the Examiner, acting independently and without advice by the Board, but guided by established precedents of the Board, to study carefully the Exhibits, testi-

Trans-Texas Pays Dividend

CONTRARY to industry trends, Trans-Texas Airways paid a small cash dividend for the second year in a row in 1959.

Trans-Texas credits four factors with making its showing possible. First, the CAB's easing of operating restrictions that permitted non-stop services between such points as Houston-Rio Grande Valley, Houston-Alexandria, Alexandria-New Orleans. Second, the CAB's 'use-it-or-lose-it' policy that eliminated nine high-cost, low-traffic points from TTA's system. Third, lowered operating costs with 'souped-up' DC-3's. Fourth, operating under a favorable permanent mail rate.

LOCAL SERVICE AIRLINES
Comparison of Revenue Miles Flown
1958 - 1959

Carrier	1958	1959	% Increase
Allegheny	6,342,728	6,816,460	7.5
Bonanza	4,046,641	4,454,991	10.1
Central	3,731,764	4,162,348	11.5
Frontier	6,181,162	8,907,740	44.1
Lake Central	3,064,414	3,446,109	12.5
Mohawk	5,039,772	5,707,522	13.3
North Central	11,262,997	13,559,183	20.4
Ozark	6,351,562	8,544,175	34.5
Pacific	5,384,049	6,010,324	11.6
Piedmont	7,807,166	8,064,223	3.3
Southern	4,076,250	4,809,191	18.0
Trans-Texas	6,162,520	7,338,121	19.1
West Coast	4,104,102	5,326,283	29.8
Totals	73,555,127	87,146,670	18.5

—(Ray & Ray Compilation)

LOCAL SERVICE AIRLINES
Comparison of Passengers Enplaned
1958 - 1959

Carrier	1958	1959	% Increase
Allegheny	488,615	577,106	18.1
Bonanza	185,024	232,047	25.4
Central	143,133	171,813	20.0
Frontier	260,582	342,686	31.5
Lake Central	186,617	230,610	23.6
Mohawk	495,140	606,382	22.5
North Central	777,140	957,136	23.2
Ozark	431,268	547,883	27.0
Pacific	394,771	491,600	24.5
Piedmont	448,005	522,630	16.7
Southern	226,230	258,180	14.1
Trans-Texas	252,931	298,387	18.0
West Coast	294,200	412,864	40.3
Totals	4,583,656	5,649,324	23.2

—(Ray & Ray Compilation)

LOCAL SERVICE AIRLINES
Comparison of U. S. Mail Ton-Miles Flown
1958 - 1959

Carrier	1958	1959	% Increase
Allegheny	139,042	145,573	4.7
Bonanza	64,515	80,783	25.2
Central	66,361	92,766	39.8
Frontier	230,449	288,205	25.1
Lake Central	43,291	50,173	15.9
Mohawk	92,657	147,715	59.4
North Central	302,144	416,537	37.9
Ozark	131,418	166,118	26.4
Pacific	135,624	174,320	28.5
Piedmont	170,815	184,524	8.0
Southern	111,436	125,109	12.3
Trans-Texas	176,654	227,920	29.0
West Coast	56,189	99,589	77.2
Totals	1,720,595	2,199,332	27.8

—(Ray & Ray Compilation)

LOCAL SERVICE AIRLINES
Comparison of Break Even Needs
(Cents Per Revenue Mile)
1958 - 1959

Carrier	1958	1959	Increase
Allegheny	50.23	56.93	6.70
Bonanza	44.78	51.66	6.88
Central	72.61	70.30	(2.31)
Frontier	48.12	64.47	16.35
Lake Central	55.37	47.53	(7.84)
Mohawk	41.25	32.73	(8.52)
North Central	32.49	44.14	11.65
Ozark	40.19	36.99	(3.20)
Pacific	43.12	37.69	(5.43)
Piedmont	28.80	46.11	17.31
Southern	52.79	53.61	0.82
Trans-Texas	43.82	37.37	(6.45)
West Coast	58.33	79.90	21.57
Average	44.17	49.41	5.24

—(Ray & Ray Compilation)

LOCAL SERVICE AIRLINES
Comparison of Revenue Passenger Miles Flown
1958 - 1959

Carrier	(000) 1958	(000) 1959	% Increase
Allegheny	84,196	98,878	17.4
Bonanza	42,336	55,694	31.6
Central	26,872	32,324	20.3
Frontier	62,704	78,301	24.9
Lake Central	29,289	36,194	23.6
Mohawk	87,291	109,862	25.9
North Central	125,931	159,835	26.9
Ozark	72,578	93,860	29.3
Pacific	83,468	104,878	25.7
Piedmont	86,435	102,483	18.6
Southern	41,818	45,583	9.0
Trans-Texas	54,934	67,218	22.4
West Coast	46,520	72,021	54.8
Totals	844,372	1,057,134	25.2

—(Ray & Ray Compilation)

LOCAL SERVICE AIRLINES
Comparison of Total Revenue Ton-Miles Flown
1958 - 1959

Carrier	1958	1959	% Increase
Allegheny	8,638,754	10,190,198	18.0
Bonanza	4,238,219	5,540,599	30.7
Central	2,780,325	3,379,462	21.5
Frontier	7,036,527	8,735,307	24.1
Lake Central	3,024,510	3,722,092	23.0
Mohawk	8,771,278	11,021,396	25.7
North Central	12,792,316	16,725,273	30.7
Ozark	7,464,695	9,741,206	30.5
Pacific	8,245,835	10,331,852	25.3
Piedmont	8,754,574	10,361,740	18.4
Southern	4,333,498	4,793,228	10.6
Trans-Texas	5,875,284	7,210,294	22.7
West Coast	4,634,051	7,160,253	54.5
Totals	86,589,866	108,912,900	25.8

—(Ray & Ray Compilation)

mony, and Briefs submitted by *all* parties, and to write an Initial Decision. This is a monumental task in most large cases, generally requiring the abilities expected of an objective news reporter, a research librarian, an economic analyst, a mathematician and an auditor, coupled with the wisdom of a Solomon and the literary fluency of an editorial writer. As such a combination is impossible, an Initial Decision seldom meets with the universal acceptance required to automatically become Final, which it would do after the specified 10 to 20-day period if no party were to object.

Initial Decisions in large area cases will readily run upwards from 200 pages of double-spaced typing. A summary is made of the desires of each party, of the more pertinent statistics and non-controversial facts submitted by the parties, of the contentions of the parties and of the estimated revenues, expenses and possible subsidies required to meet services sought. Based upon these summaries as they appear to him, the Examiner states his conclusions and the recommended wording of carrier Certificates of Public Convenience and Necessity — the operating authority under which his conclusions would be implemented. Whether his Initial Decision becomes Final or not, the Examiner washes his hands of the case with the release of his recommendations. He takes no further part in the proceedings and soon will be involved in his next case.

Exceptions To The Initial Decisions

If a party objects to the findings of the Examiner, he submits Exceptions. These are a mere statement of points of disagreement, carefully itemized, usually with brief reference to the particular facts of record upon which reliance is based to support such disagreement.

If no Exception is taken by a party to a particular finding of the Examiner, then it is automatically assumed that the party agrees with such findings. Further argument can only be made on points to which Exceptions are noted. Exceptions form the basis for the next procedural step.

Brief To The Board

The Examiner's Initial Decision, if it does nothing else, simplifies the issues for each party. It tells what points of a case have been made, and what points have been missed. It gives a starting place for *concentrated* efforts — the starting place being the specific Exceptions taken.

The Brief to the Board is really a Brief in support of Exceptions taken to the Initial Decision. Previous arguments and new arguments — all still

GOLDEN Metropolitan SERVICE!

MOHAWK's nimble schedules knit the northeastern United States together . . . from the Great Lakes to the Atlantic . . . from the St. Lawrence Seaway to metropolitan New York City.

Both proudly and comfortably, too — with MOHAWK Golden Metropolitan Convair 440's on the job. Next time . . . fly MOHAWK!

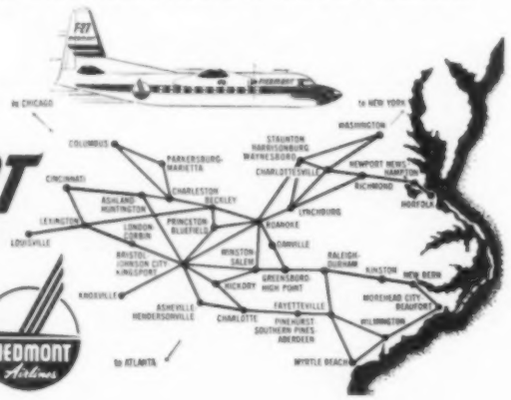
MOHAWK AIRLINES INC. EXECUTIVE OFFICES: ONEIDA COUNTY AIRPORT, UTICA, NEW YORK

Piedmont's revenue passenger miles in 1959 up 18.57% to a record 102,482,452
Passenger increase on Piedmont last year up 16.66% to all-time high of 522,630
50% more traffic on Piedmont's F-27 Pacemaker
PIEDMONT'S F-27 PROP-JETS WIN NEW FRIENDS FOR AIR TRAVEL

Flight figures for 1959 conclusively show the enthusiastic reception Piedmont Airlines' eight new F-27 prop-jets have received in an important seven state area. More and more people are enjoying the speed and luxury of Piedmont F-27 prop-jet travel, which includes such passenger-pleasing features as complete cabin pressurization, air conditioning (on the ground and in the air), and radar for smooth flights in all kinds of weather.

Piedmont's new F-27 prop-jets and DC-3 Pacemakers provide the Top of the South with frequent, fast, convenient flights . . . connecting to other airlines serving the nation and the world.

Route your passengers via Piedmont's Route of the Pacemakers.
It's good business all around!



PIEDMONT AIRLINES

Home Office and Operations Base, Smith Reynolds Airport WINSTON-SALEM, N.C.

based entirely on matters of record — are made to emphasize claims of error or oversight on the part of the Examiner, whereby he failed to grant the services believed required by the party.

As with previous submissions, copies of this Brief, too, must be served all parties receiving Exhibits and subsequent material.

Oral Argument

The importance of Oral Argument is impossible to overstress. This is not only the last procedural step prior to the Board's Final Decision but more important, it is the *only* direct contact with the five Board Members who hold the ultimate fate of each party's hopes and desires.

Oral Argument is held in the Board Room where each party, through its attorney or official representative, talks face to face to the Civil Aeronautics Board Members. This is the opportunity to summarize the main points of the case — to implant in the minds of the Board Members the key issues and needs. Civic parties are usually limited to 10 minutes each in which to make their Arguments. More time may occasionally be granted. Airline participants and Bureau Counsel usually have from 30 minutes to an hour.

During each Argument, Board Members may interrupt with questions. If these questions and their answers take an appreciable time, allowance is generally made so that the allotted time is not shortened.

With the close of Oral Argument, the case rests in the hands of the Board for final decision.

Board Decision

The Board can announce its decision by one or more of three methods — by a Press Release stating that a majority of the Members are in agreement and briefly summarizing only the highlights of this argeement; by Tentative Findings going into more detail than a Press Release; or by a Decision and Board Order stating the full decision, supporting discussion and issuance of Certificates of Public Convenience and Necessity. Press Release and Tentative Findings are subject to change in the final Board Order.

The Board's Final Decision may completely replace the Initial Decision or it may incorporate some or all of the Initial Decision. It is seldom as lengthy or all-inclusive as the Initial Decision.

Petition To Reconsider

Some "die-hard" parties, with much at stake and dissatisfied with the Board's verdict, may see fit to Petition the Board to reconsider its decision, basing the petition on a reinstatement of fact or facts deemed overlooked or

upon a point of law. Such petitions must be filed within 20 days of release of the Decision.

In some cases the Board may withhold the effectiveness of its awarding Order pending action on Petitions to Reconsider, in other cases the Order may take effect while further consideration continues.

As a result of Reconsideration, the Board may uphold, amend or revoke its previous decision. Barring appeals to a court, this action of the Board is final and the long case finally comes to a close.

Theoretically — and for the most part, actually — each party has had its "day in court" in the best American tradition. Properly documented, with all stages of procedure properly acted upon, with facts and arguments fluently set forth *in such a manner as to assure that* Bureau Counsel, the Examiner, and the Board are thoroughly and accurately aware of the main points established, reasonable requests for airline service are usually awarded — if such award does not work an undue hardship on other parties or on the taxpayer.

Note the underlined key words — *"in such a manner as to assure"* thorough and accurate awareness of those instrumental in the final decision. Here are some suggestions as to how to achieve this assurance.

Practical Suggestions

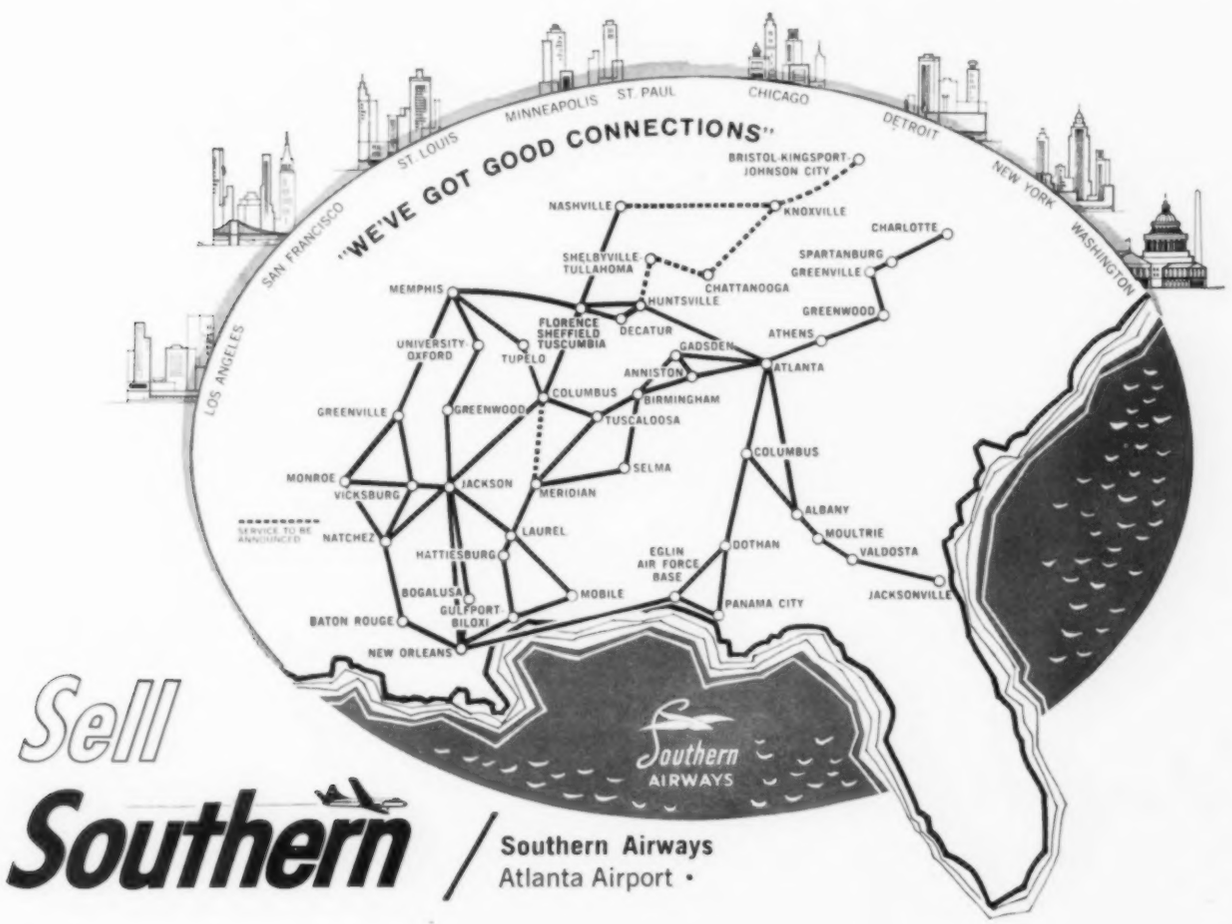
There is a right way and a wrong way of preparing papers for submission to the CAB. The CAB is extremely tolerant and many a submission that was lacking in many respects has been accepted without comment. However, such half-done items are a reflection on a community. Community pride demands a well-handled case and such a case has greater chances of success.

It would take a book to detail and show by example all that can be done to make applications, petitions, and exhibits and briefs do the best job possible. However, several cardinal points can be suggested here.

First is *conformance* with Board specifications. The best way is to know the requirements. Send for a copy of the Board's "Rules of Practice" to the Publications Section, Civil Aeronautics Board, Washington 25, D. C. In addition, ask the local service airlines serving (or seeking to serve) your area for a loan of a sample (or samples) of what they consider outstanding examples of what other cities in the past have submitted. Together, the rules and the samples should be sufficient guides to see you off to a good start.

Second cardinal rule is *accuracy*. Understand the right terminology and use it correctly as this can avoid a lot of misunderstanding later in the case. But accuracy is even more important in the data submitted in exhibits. Figures for population, traffic, mileages, all of the figures showing expanding economy, comparisons with other cities, etc., should be both accurate and free of exaggeration. Sources for this information should be included to authenticate the material. Unusual circumstances that have affected the development of growth data should be explained. For example, the annexation of an adjoining area that brings an abnormal increase in population should be footnoted.

Third cardinal rule is *initiative*. Keep in mind that, for all of the legal wrappings, you are really engaged in *selling* your city to the airlines and the Board. Few people have traveled so extensively that they are even casually familiar with every city and town. The Board and its staff are no exceptions. They may not even have heard of your city, or even though casually acquainted with it, certainly they may be completely unfamiliar with its basic economic factors that go to justify new or improved air service. Within the bounds of honesty, express your



Sell Southern
Southern Airways
Atlanta Airport •

economic data in terms that they can understand.

Don't just say that Podunk is 137 miles from Big Town. Tell them that Podunk is as far from Big Town as Philadelphia is from Washington, 137 miles. Washington they know, and can form a mental picture of how long it takes to drive between Washington and Philadelphia. Don't just say that Podunk is a city of 32,500 population. Tell them that Podunk is about the size of Charlottesville, Va., 32,500 population. This does two things. It gives these people a picture of a city with which they are likely to be familiar, and it also compares your city with one of like size that is a good airline traffic generator (Charlottesville boarded over 20,000 passengers in 1959). But, before choosing Charlottesville for comparison, do a little serious investigating to make sure that you have more in common than just a population figure. Check such sources as Sales Management magazine's annual Survey of Buying Power issue, published on May 10 of each year, and the annual Editor and Publisher Marketing Guide. These and others can be a source of much comparative data. Material contained in the Local Service Issues of FLIGHT MAGAZINE, published each June, have been used in many presentations to the CAB.

Charts, graphs and maps help to make statistical data quickly and readily understood. Prepare and reproduce them carefully and accurately. Color frequently helps to accent a point in a map or chart, directing attention immediately to the essentials.

Mere inclusion of statistics, tables of data, etc., because other exhibits contain similar data, is frequently useless, unless care is taken to explain the relevance of the data to your particular situation. Tell the Board that this data is being included to show that Podunk is enjoying a steady growth, or whatever the data does show. If it really doesn't show anything worth-

(Continued on page 100)

Local Service Airlines Directory

Allegheny Airlines, Inc.
Washington National Airport, Hangar 12
Washington 1, D. C.

First scheduled passenger service started March 7, 1949. Now serving over 65 cities, 1,750 system route miles, operating or has on order 12 Martin 202's, 10 Douglas DC-3's, 7 Convair 440's, and 5 Convair 540's, 1,100 employes.

Chairman: Henry A. Satterwhite.
President: Leslie O. Barnes.
Senior Vice Pres.: David L. Miller.
VP-Finance & Secretary: Walter J. Short.
VP: Richard G. Dinning.
VP-Maint. & Engrng.: R. J. Masiello.
VP-Legal Affairs and Ec. Res.: Edwin I. Colodny.
VP-Sales & Service: Nelson B. Fry, Jr.
Treasurer: George F. Gerth.
Controller: W. Dale Hay.
Gen. Sales Manager: L. T. Ferguson.
Gen. Mgr.-Transp. Svcs.: R. C. Schumm.
Dir. Flight Ops.: Harvey Thompson.
Dir. Maintenance: Leroy L. Johnson.
Dir. Properties: James R. Williams.
Dir. Public Rels.: Peter D. Brennan.
Dir. Supply: R. C. Gudikunst.
Asst. to the Treasurer: William Wickham.
Chief Dispatcher: Karl Tewell.
Mgr.-Scheds. & Tariffs: George N. Spooner, Jr.
Mgr.-Adv. and Sales Prom.: Dennis G. Houston.
Mgr.-Res. & Ticket Sales: Edward Lynch.
Mgr.-Cargo and Mil. Sales: Jack Hiller, Jr.
Mgr.-Inflight Services: Donald B. Slep.
Mgr.-Sta. Services: Robert A. Jenkins.
Chief Revenue Auditor: Robert Vick.
Agcy. & Interline Sales Mgr.: David Rehmeyer.
Customer Relations Mgr.: Richard L. Plant.
Office Manager: Russell A. Hayes.
Purchasing Agent: George J. Lostetter.
District Sales Managers: E. F. Bracken, Pittsburgh; W. J. Meyers, New York; J. R. Luke, Philadelphia; J. E. Manger, Harrisburg; E. P. VanMaele, Cleveland/Detroit; Robert Taylor, Washington/Baltimore; Woodrow Murphy, Boston; Nelson G. Abbott III, Providence; John Kiehl, Bridgeport/New Haven.
Corporation Counsel: Hale, Stimson, Russell & Nickerson.

Bonanza Air Lines, Inc.
McCarran Field, P. O. Box 391
Las Vegas, Nevada

First scheduled service started Aug. 6, 1946. Now serving 27 cities, 2,090 system route miles. 10 Douglas DC-3's, 8 Fairchild F-27A's, 2 additional F-27A's on order, 491 employes.

President and Chairman: Edmund Converse.
Exec. Vice Pres. & Dir.: G. Robert Henry.
VP-Operations: Myron W. Reynolds.
VP-Traffic & Sales: William J. Mitchell.

TTA

serves more cities in
LOUISIANA
than any other airline

route your passengers thru
NEW ORLEANS · DALLAS
MEMPHIS · HOUSTON
JACKSON, Miss.

TRANS-TEXAS AIRWAYS

Route your
TEXAS
passengers on
TTA

thru the
DALLAS, HOUSTON and EL PASO
gateways
serving 33 Texas cities

TRANS-TEXAS AIRWAYS

TTA

serves more cities in
ARKANSAS
than any other airline

route your passengers thru
MEMPHIS · DALLAS
NEW ORLEANS

TRANS-TEXAS AIRWAYS

VP-Finance & Treas.: Robert J. Sherer.
Gen. Counsel & Secretary: Ralston O. Hawkins.
Dir. Research & Development: Earl E. Jochim.
Dir. Ind. Rels.: Richard A. Rogers.
Asst. to Pres.: Jack Arant.
Asst. to Pres.-Civic Affairs: John D. Lindsay.
Asst. to Exec. VP: Don Neilson.
Asst. to VP-Opns.: Louis J. Arpin.
Gen. Sales Mgr.: Larry Decker.
Gen. Traffic Mgr.: Robert E. Hill.
Supt. Pur. & Stores: Earl E. Hall.
Supt. Stations: Bernard Novia.
Chief Pilot: Paul A. Beach.
Dir. Public Affairs: Bruce Ryan.
Div. Chief Hostess: Marguerite Kreiling.
Supt. Maint.: George Davis.
Supt. Inspection: Jack O'Dell.
Supt. Comms./Electronics: John S. Glenn.
System Res. Mgr.: George J. Schleifer.
Dir. Printing & Publications: John Polsgrove.
Dir. Maint. Training: Ernest Winn.
Comptroller & Asst. Sec.: Tom Van Bogart.
Supt. Rev. Accounting: Gloria Crews.
Pass Clerk: Gladys Pyles.
Regional Sales Mgrs.: R. J. Murray, Calif.; R. T. Czerny, Arizona.
Dist. Sales Mgrs.: Phil Mench, Reno; Robert Busseau, Ontario; L. Lee Fuson, San Diego; F. William Schramm, Salt Lake City.
Washington Counsel: William C. Burt and Albert F. Grisard.

Central Airlines, Inc.
Amon Carter Field
Fort Worth, Texas

First scheduled service started Sept. 15, 1949. Now serving 35 cities, 3,661 system route miles, 15 Douglas DC-3's, 496 employes.

Chairman: F. Kirk Johnson.
President: Keith Kahle.
Ex. VP-Treas.: F. E. Howe.
VP-Traffic & Sales: A. S. Aldridge.
VP-Ops.: R. L. Wageneck.
Secty. & Asst. Treas.: C. E. Lundstrom.
Traffic Mgr.: J. C. Dixson.
Mgr. Mil. Transp. and Interline Sales: R. G. Wagley.
Mgr. Psgr. Svc.: J. W. Force, Jr.
Asst. Mgr. Psgr. Svc.: J. F. O'Drain.
Mgr. Mail and Cargo Sales: A. R. Purifoy.
Dist. Sales Mgrs.: Stewart Faulkner, Dallas-Ft. Worth; H. F. Harbuck, Lubbock; Paul H. Jones, Kansas City; V. R. Westbrook, Oklahoma City; J. D. Sullivan, St. Louis; T. A. Kautz, Wichita.
Supv. Rates & Tariffs: F. S. K. Masi.
Chief Acct.: R. J. Clauser.
Pur. Agent: A. C. Terrill.
Mgr. Stores: H. W. Nelson.
Dir. Personnel: J. K. Mikel.
Sup. Print Shop: T. M. Lane.
Supt. Stations: T. W. Jones.
Asst. Supt. Stations: John R. Jones.
Dir. Flt. Opns.: W. A. Whitlock.
Chf. Flt. Supt.: R. R. Conner.
Chf. Stewardess: Thelma Doyle.
Dir. Maint.: D. S. Vaughn.
Supt. Maint.: F. N. Walsh.
Chf. Inspector: W. E. Beck.
Supt. Comms.: R. E. Wilson.
Sup. Reservations: Francene Morris.
Corp. Counsel: Hudson and Keltner.
Wash. Counsel: Pogue and Neal.
Director of Research: J. A. Cooper.
Manager Sales Promotion: John Skelton.

Frontier Airlines, Inc.
Hangar #5, Stapleton Airfield
Denver 7, Colorado

First scheduled service started Nov. 27, 1946. Now serving 68 cities, 6,800 system route miles, 25 Douglas DC-3's, 5 Convair 340's, 1,200 employes.

Chairman and President: Lewis B. Maytag, Jr.
Executive Vice President: G. Ray Woody.
VP-Traffic and Sales: J. Dan Brock.
VP-Operations: Ray P. Minniear.
Treasurer: Edward F. Dolansky.
Secretary: John A. Love.
Dir. of Ec. Controls: John Clark Coe.
Dir. Legal and Public Affairs: William A. Nelson.
Dir. Accounting: Dale W. Rausch.
Dir. Procurement: Barney E. Foster.
Dir. Traffic: James B. Montgomery.
Dir. Sales: Thomas M. Makurat.
Dir. Maint. and Engrng.: Jeff E. Mahan.
Dir. Flight Ops. and Chief Pilot: Everett L. Aden.
Ast. Dir. Public Affairs: Vern A. Carlson.
Mgr. Cost Controls: Marvin E. Larson.
Mgr. Payroll & Stat. Acctng.: Robert B. Snider.
Mgr. General Accounting: Gene L. Lamansky.
Mgr. Revenue Accounting: John L. Chapel.
Mgr. Machine Accounting: Charles H. Turner.
Mgr. Stock and Stores: William D. Hamilton.
Mgr. Personnel: Gordon Shaffer.
Mgr. Training: Al E. Olinger.
Mgr. Stations: Elton L. Snoke.
Mgr. Flight Service: William R. Monday.
Mgr. Publicity: Edward H. Gerhardt.
Mgr. Scheduling and Charters: Chet R. Lubben.
Sup. Tariffs: Claire M. Almquist.
Sup. Station Training: David H. Burr.
Sup. Reservations and Payload: Guy L. Lewis.
Sup. Customer Service: L. L. (Pete) Peterson.
Supt. Flight Operations: G. H. Nettleblad.
Chief Dispatcher: Vern R. Stever.
Supt. Maintenance: Fred E. Elliott.
Supt. Ground Facilities: Frank L. Davidson.
Supt. Communications: Clyde C. Longhart.
Supt. Engineering: Roland A. Roepe.
Supt. Inspection: Earl W. Fischer.
Dist. Sales Mgrs.: Donald L. Boyle, Phoenix; George L. Naglich, Omaha; Mel Brandt, Billings.
Senior Sales Rep.: Larry C. Sills, Denver.

Serving THE Great State OF Alaska

with the

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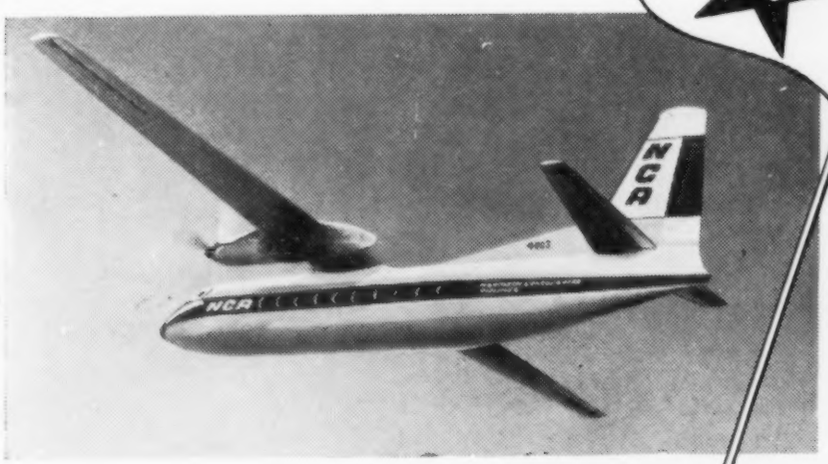

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"FIRST WITH JET POWERED AIRCRAFT IN ALASKA"

NORTHERN Consolidated AIRLINES, INC. ALASKA

GENERAL OFFICES • BOX 6133 • ANCHORAGE INTERNATIONAL AIRPORT

Agency and Interline Rep.: E. Paul Glidewell.
Washington Counsel: Bowen and Rasenberger.

Lake Central Airlines, Inc.
Weir Cook Municipal Airport
Indianapolis 21, Ind.

First scheduled service started Nov. 7, 1949. Now serving 31 cities, 2,285 system route miles, 12 Douglas DC-3's, 345 employes.

Chairman: J. J. O'Connell, Jr.
President: Gwin Hicks.
Exec. VP: Lloyd W. Hartman.
VP-Traffic & Sales: D. S. Getchell.
VP-Ops.: Robert W. Clifford.
Asst. Treasurer: J. L. Cory.
Mgr. Tariffs, Sched.: Wm. R. Roth.
Dir. Public Rels.: James Humphrey.
Accounting Sup., Gen.: Ada Royer.
Acctng. Sup., Rev.: J. P. Berfanger.
Chf. Storekeeper: Robert Campbell.
Pur. Agent: C. L. Desterbecque.
Chief Pilot: A. E. Sabo.
Chief Dispatcher: A. E. Woolley.
Supt. Maint.: H. A. Petty.
Psgr. Svc. Mgr.: Robert Fisher.
Supt. Comms.: Charles Hildebrand.
Sup. Reservations: Juergen Ballast.
Wash. Counsel: Albert Grisard.

Mohawk Airlines
Oneida County Airport
Utica, New York

First scheduled service started April 6, 1945. Now serving 38 cities, 2,285 system route miles, 5 Convair 440's, 8 Convair 240's, and 7 Douglas DC-3's. 900 employes.

Chairman: E. Victor Underwood.
President: Robert E. Peach.
Exec. Asst. to Pres.: Helen R. Thomas.
VP-Gen. Counsel: John R. Carver.
VP: Carl A. Benscoter.
VP-Personnel: R. V. Stephenson.
VP-Maint. & Eng.: Remington R. Taylor.
Secretary: Bruce C. McLean.
Treasurer: Frank R. Chabot.
Asst. Treasurer & Chief Accountant: Arthur Williams.
Gen. Sales Mgr.: Howard W. Ostrom.

Dist. Sales Mgrs.: Southern Tier: V. Cady; Metropolitan area: E. D. Evans; Buffalo-Niagara Falls area: Walter Sullivan; Central New York: George Bright; New England area: Maurice M. Evans.
Dir. Public Relations: Robert T. Sidney.
Dir. Customer Service: Wayne F. Hersh.
Dir. Properties: Raymond A. Murray.
Dir. Flight Operations: William G. Graham.
Dir. Flight Schedules: R. P. Sherwood.
Dir. Tariffs: DeHart B. Clute.
Supt. Comms.: Emil R. Klusacek.
Dir. Purchasing: Glenn W. Irish.

North Central Airlines, Inc.
6201 34th Avenue, South
Minneapolis 50, Minnesota

First scheduled service started Feb. 24, 1948. Now serving 70 cities, 5,366 system route miles, 5 Convair 340's, 32 Douglas DC-3's, 1,900 employes.

Chairman: Arthur E. A. Mueller.
President: Hal N. Carr.
VP-Traffic & Sales: F. N. Buttomer.
VP-Flt. Ops.: A. D. Niemeyer.
VP-Ind. Rels.: A. E. Schwandt.
VP-Maint. & Engrng.: R. H. Bendio.
VP & Counsel: A. L. Wheeler.
VP & Scty.-Treas.: Bernard Sweet.
Asst. Scty.: J. P. Dow.
Dir. of Ground Ops.: T. M. Needham.
Mgr. Maint. & Eng.: L. J. Keely.
Mgr. Flt. Ops.: G. F. Wallis.
Cargo Sales Mgr.: John Minerich.
Mgr. Sales Adm.: John L. Hammer.
Traff. Adm. Mgr.: Robert Erdmann.
Fleet Service Mgr.: George Karnas.
Tariffs & Scheds. Mgr.: C. B. Vesper.
Dist. Sales Reps.: Don Lamont, Jim Palm, Eugene Leonard, Robert Shook, Erling Nassett, Richard E. Peterson, Wayne Harris, Walter Janda, William Domres, Charles Simpson, Henry Thiele, Warren Rowe, Mary Fritz; **Military Sales Rep.:** Dennis Weber; **Interline and Agency Rep.:** John N. Harty.
Reg. Spts. Stns.: Kent Kistler, Robert Smith, Richard G. Cooper.
Pub. Rels. Mgr.: Donald C. Wright.
Gen. Acct.: Dan May.
Rev. Acct.: Don Sonnichsen.
Machine Acct. Sup.: W. E. Wolf.
Purchasing Agent: Gordon Bullis.
Supt. Stations: Robert Baker.
Chf. Flt. Supt.: Joseph Sims.
Chf. Stewardess: Kathy Leddick.
Chf. Pilot: Arthur Hinke.
Chief Engineer: Ralph Roberts.
Supt. Maint.: Robert L. Gren.
Overhaul Supt.: G. Roycraft.
Electronics Supt.: A. Warner.
Sup. Reservations: Marvin J. Freund.

Ozark Air Lines, Inc.
Lambert Field
St. Louis 21, Mo.

First scheduled service started Sept. 26, 1950. Now serving 54 cities in 10 states, 5,273 system route miles, 24 Douglas DC-3's and 3 Fairchild F-27's, 1,200 employes.

Brd. Chairman: Floyd W. Jones.
President: Joseph H. FitzGerald.
Treasurer: Elbert H. Green.
Secretary: Arthur G. Heyne.
Gen. Counsel: Jean Paul Bradshaw.
Asst. to Pres.: C. L. Tabor.
Dir. Pub. and Interline Rels.: Paul J. Rodgers.
Dir. Info.: Francis M. Higgins.
Dir. Ops. & Maint.: R. Grant Rees.
Dir. Fin. & Comptroller: E. J. Crane.
Dir. Adm. & Ec. Controls: Henry L. Sweezy.
Dir. Adv. & Sales: S. F. McCullough.
Dir. Pur. & Properties: Rex E. Creighton.
Dir. Customer Svcs.: Charles Mounts.
Supt. Maint.: Ellwyn E. Boock.
Supt. Comms.: Phillip Newell.
Sales Prom. Mgr.: Bob Sumners.
Adv. Mgr.: Earl Bowman.
Psgr. Svc. Mgr.: Tom Keys.
Tariff Sched. Mgr.: Daniel Weishaar.
Supt. Stations: Vince O'Brien.
Chf. Flt. Supt.: Bill Enochs.
Chf. Acct.: Charles Owen.
Personnel Mgr.: Mrs. Connie Mounts.
Legal Counsel: James Verner & James Batchelor.

Pacific Air Lines, Inc.
San Francisco International Airport
San Francisco, Calif.

First scheduled service started Dec., 1946. Now serving 33 cities, 1,896 system route miles, 11 Douglas DC-3's and 7 Martin 202's, 6 F-27A's, 560 employes.

Chairman: Leland Hayward.
President: John H. Connelly.
Exec. VP: T. R. Mitchell.
VP-Tfc.: R. E. Costello.
VP-Sales: M. A. King.

Treas.: E. R. Dahl.
VP-Finance: C. A. Myhre.
Pur. Agent: A. W. Slater.
Gen. Sales Mgr.: J. Carl Ferrell.
Dir. Flt. Ops.: R. Couk.
Flt. Supt.: Wm. G. Hall.
Chf. Stewardess: Mrs. Mary Jane Fischer.
Dir. Maintenance: D. Davison.
Supt. Maintenance: Arnold Boller.
Dir. Comms.: Odis Burris.
Wash. Counsel: T. I. Seamon.

Piedmont Airlines
Smith Reynolds Airport
Winston-Salem 1, N. C.

First scheduled service started February 20, 1948. Now serving 53 cities, 3,492 system route miles, 17 DC-3's, 8 F-27's, 1,134 employes.

President and Treas.: T. H. Davis.
Vice Presidents: C. G. Brown, Jr., H. K. Saunders, R. S. Northington.
Secretary and Asst. Treas.: M. F. Fare.
Asst. Controller: T. W. Morton.
Asst. to Pres.: Don Britt.
Dir. Personnel Adm.: Joe R. Fowler, Jr.
Gen. Sales Mgr.: W. G. McGee.
Gen. Traffic Mgr.: R. E. Turbiville.
Dir. Scheds. and Tariffs: F. P. Lincoln.
Dist. Sales Mgrs.: J. L. Wathen, D. G. Edmondson, R. J. Miller, H. L. Warner, J. A. Humphreys, S. C. Folger, P. D. Loar, O. E. Halsey.
City Sales Mgr.: W. A. Crowe.
Sales Rep.: O. C. Larch.
Supt. Stations: K. E. Ross.
Div. Sta. Supervisors: E. T. Best, C. B. Nutt, P. P. Jones, T. R. Cowen.
Sup. Gen. Acctng.: A. F. Long.
Sup. Rev. Acctng.: F. G. Bates.
Sup. Mach. Acctng.: P. Alexander.
Pur. Agent: W. W. Barber.
Chief Pilot: F. C. Nicholson.
Supt. Psgr. Service: S. S. Brunt.
Supt. Maint.: H. M. Cartwright.
Supt. Comms.: L. A. Watson.
Asst. to Vice Pres.: J. W. Lewis.
Sup. Ground Ops.: W. A. Blackmon.
General Counsel: Kilpatrick, Ballard & Beasley.

Southern Airways, Inc.
Atlanta Airport
Atlanta, Ga.

First scheduled service started June 10, 1949. Now serving 41 cities, 4,511 system route miles, 23 Douglas DC-3's, 853 employes.

President: Frank W. Hulse.
Vice President: Ike F. Jones.
VP-Sales: Graydon Hall.
VP-Ops.: W. S. Magill, Jr.
Secty.-Treas.: George F. Estey.
Asst. Treas.: C. H. D. Tarrer.
Asst. VP-Res. & Planning: J. K. Courtenay.
Asst. VP-Props.: G. F. Attwood.
Asst. VP-Flt. Ops.: W. B. Grubb.
Asst. VP-Maint. & Eng.: George Gross.
Gen. Sales Mgr.: T. A. Wiley, Jr.
Dir. Adv. & Sales Develop.: Archie D. Yawn.
Dir. Agcy., Interline & Mil. Sales: Clarence Moses.
Supt. Psgr. Svc.: G. H. O'Brien.
Dist. Sales Mgrs.: Harold Goodson, Atlanta; R. E. Kale, Memphis; Perry Wingo, Jackson; Jack Shaw, Jacksonville; B. G. Rowley, New Orleans.
Gen. Traffic Mgr.: Fred A. Shine.
Acctng. Sup., Gen.: R. W. Burden.
Purch. Agent: Dave Cannon.
Personnel Dir.: Everett Martin.
Supt. Stations: L. A. McLaughlin.
Chf. Stewardess: Mrs. Barbara Spires.
Chf. Insp.: Fred McMickle.
Chf. Dispatcher: Truman Terry.
Supt. Comms.: D. C. Weigle.
Supt. Reservs. & Tck. Offices: D. R. Hankins.
Corp. Counsel: William B. White, Jr.
Wash. Counsel: Cecil A. Beasley, Jr.

Trans-Texas Airways
International Airport
Houston 17, Texas

First scheduled service started Oct. 11, 1947. Now serving 42 stations, over 50 cities, 4,456 system route miles, 25 Super Starliner DC-3's, 780 employes.

President: R. E. McKaughan.
VP-Pub. Affairs: J. K. Ayer.
VP-Traffic & Sales: L. J. Eichner.
VP-Ops.: H. E. Erdmann.
VP-Purchasing: W. C. Leatherwood.
VP-Personnel: Phil Reid.
Asst. to VP-Ops.: C. L. Baker.
Flight Asst.: Marvin Brooks.
Asst. to VP-Tfc.-Sales: Jack Howe.
Treas.: M. L. Muse.
Dir. Properties: R. E. McKaughan, Jr.
Gen. Sales Mgr.: Tony Kamel.
Mgr. Interln. & Agency Sales: J. W. Beck.
Dist. Sales Mgrs.: C. P. Briggs, Houston; T. Tolliver, Dallas; J. Lewis, San Antonio; K. P. Banff, Valley; J. B. Fleming, Shreveport; K. Daugherty, Beaumont-Pt. Arthur; Bob Meredith, Arkansas, J. Cassady, New Orleans.
Dir. Pub. Rels.: Bill Newkirk.
Chf. Accountant: H. H. Farr.
Mgr. Tariffs: G. J. Barbier.
Acctng. Sup., Rev.: A. C. Sandifer.
Mgr. Stores: F. C. Buck.
Mgr. Mach. Acctng.: T. K. Phelan.
Sup. Print Shop: M. M. Kelly.
Dir. Research: J. C. Crawford.
Dir. Station Operations: J. L. Herring; Asst.: W. W. Franklin.
Regional Directors: Jim Martin, Western; T. O. Brinkley, Eastern.
Asst. Chf. Pilot: R. Carle.
Chf. Dispatcher: W. J. Schoen.
Dir. Psgr. Svc.: Harry Rodgers.
Dir. Maint.: H. P. Whatley.
Supt. Maint.: T. O. Weathers.
Supt. Comms.: E. W. Helken.
Sup. Reservations: B. Jones.
Gen. Counsel: Clark, Reed & Clark.

West Coast Airlines, Inc.
Boeing Field, Seattle, Wash.

First scheduled service started Dec. 5, 1946. Now serving 63 cities in 6 states plus Calgary, Alberta, 4,000 system route miles, 14 Douglas DC-3's, 6 Fairchild F-27's, 857 employes.

President: Nick Bez.
VP-Planning & Adm.: E. B. Code.
VP-Community & Pub. Rels.: Tom Croson.
VP-Admin. & Legal: Herman F. Scheurer, Jr.
VP-Maintenance: S. M. Selby.
VP-Operations: S. R. Severtson.
Asst. to VP-Ops.: H. E. Wallis.
Scty.-Treas.: Lewis J. Hawkinson.
Asst. Treas.: K. N. Laurin.
VP-Sales: George E. Hatch.
Mgr. Customer Rels.: B. O. Baker.
Mgr. Adv. & Pub. Rels.: Douglas Billmeyer.
Mgr. Personnel Svcs.: R. S. Heath.
Mgr. Traffic: Dennis R. Kelley.
Mgr. Reservations: Burr Clark.
Mgr. Flt .Ops.: Shelby Tuttle.
Pur. Agent: George Jefferson.
Mgr. Psgr. Svc.: Curt Dils.

OVERSEAS NATIONAL AIRWAYS REPORTS: 93,732 HOURS ON AIRWORK OVERHAULED ENGINES

1 We have flown over 93,732 engine hours since June 1958. During this time we have had no failures attributable to engine overhaul. We have had only two removals for failure.

2 In the first four months of operation of our present MATS Atlantic contract, we have maintained an "on time through all stations" record of 93%, with only five-tenths of one percent delay due to engine malfunction. We averaged 13.7 hours utilization out of 24 for the month of December.

3 All of our engine extensions were granted without any problems at overhaul inspection. At present we have applied for and been granted an extension to 1600 hours.

4 Six leased engines that have gone through two Airwork overhauls have shown an exceptional improvement in both lower operating cost and additional service life.

5 During the last quarter of 1959, we flew 17,948 hours with zero failures.

Shelley Gershman
Superintendent of Maintenance

Airwork overhauled engines are maintaining high performance standards for Mohawk, North Central, Seaboard & Western, Riddle, Trans Caribbean and 10 foreign airlines. In June, Airwork will begin overhauling Rolls-Royce Dart prop-jet engines.

OVERSEAS NATIONAL AIRWAYS

OVERSEAS NATIONAL is the prime contractor for MATS

Airwork CORPORATION
Millville, New Jersey

BRANCHES IN:
ATLANTA
CLEVELAND
MIAMI
NEWARK
NEW YORK
WASHINGTON

Airwork

Curtiss-Wright powered helicopters bring "local service" to the heart of town

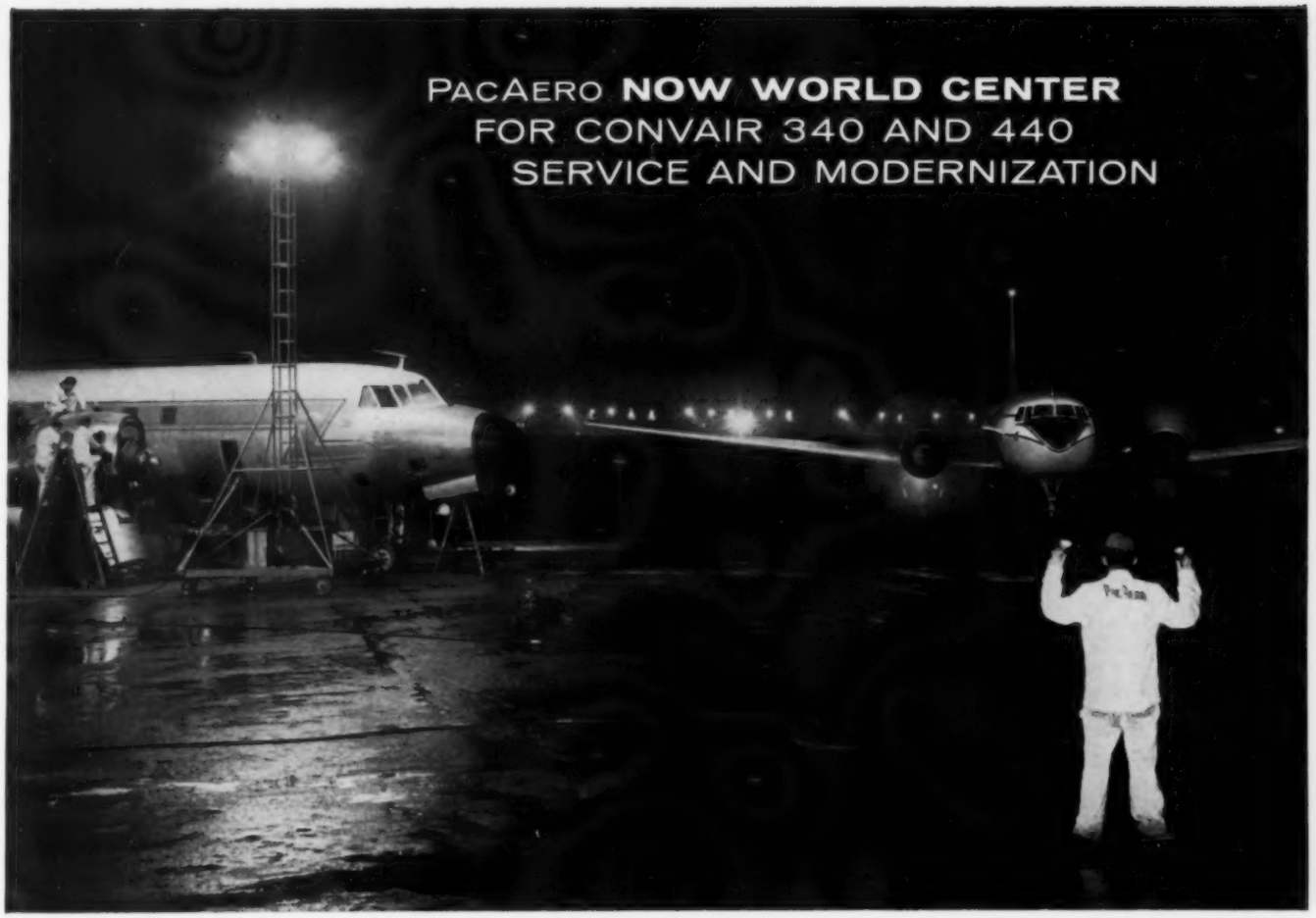
With airports moving farther out . . . and large cities having more and more points of departure . . . the helicopter has become increasingly important in assuring air travelers the full advantages of jet age speeds.

To provide this short range "commuter service" dependably, leading helicopter manufacturers and operators rely on Curtiss-Wright engines. Such widely used models as the Sikorsky S-58 and the Vertol H-44 are powered by the Curtiss-Wright Cyclone 9 engine. In addition, Curtiss-Wright makes Automatic Throttle Controls that give helicopter pilots a "third hand" . . . keep engine speed constant and guard against overspeeding.

In flights between city centers and airports, in military applications, in rescue and supply work . . . helicopters with compact, powerful Cyclone 9 engines serve in vital jobs for government and industry today.

CURTISS-WRIGHT

CORPORATION • WOOD-RIDGE, N. J.



From 100-hour check – to major overhaul – through Allison Prop-Jet conversion – PacAero has the men and means for the finest Convair service – around the clock

Convair operators the world over rely on PacAero for any and all of their service and modernization requirements, because PacAero – with the direct cooperation of Convair – has amassed more Convair conversion experience than any other firm, along with Convair-qualified personnel and specialized facilities. All PacAero materials and workmanship are warranted and certified. Result: PacAero assures your Convair the ultimate in service and modernization at minimums in cost and down-time.

PacAero is the exclusive source for Convair 340 and 440 conversions to quieter and more efficient Allison 501-D13 prop-jet power, as sub-contractor to Allison Division of General Motors. This conversion boosts cruise speed by 80 mph, involves modifications of the aircraft's nacelle, systems, heating, air conditioning, controls, empennage and other areas.

Other PacAero services to Convair operators include: service and overhaul; design and installation of custom interiors; installation of radar, navigation, communications and specialized electronic equipment; fuel expansion; and exterior painting.

For around-the-clock Convair service, modification, or conversion, come to PacAero for the fastest and finest!

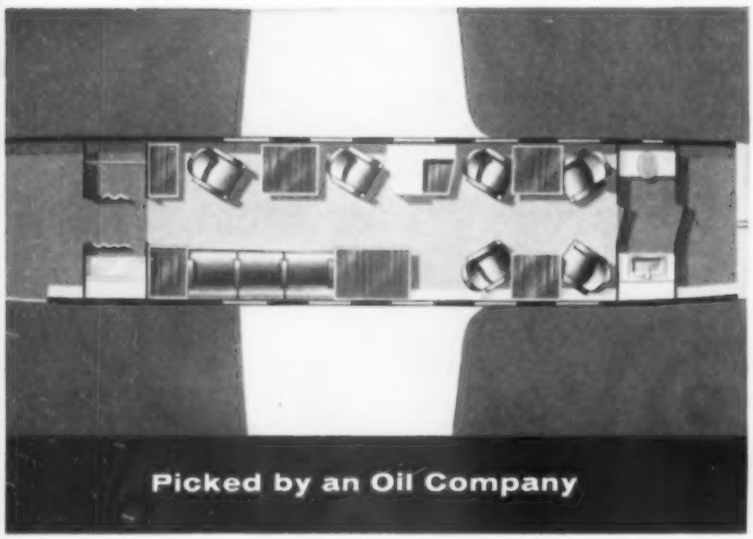
PACAERO ENGINEERING CORP.

A subsidiary of Pacific Airmotive Corporation, Burbank, California

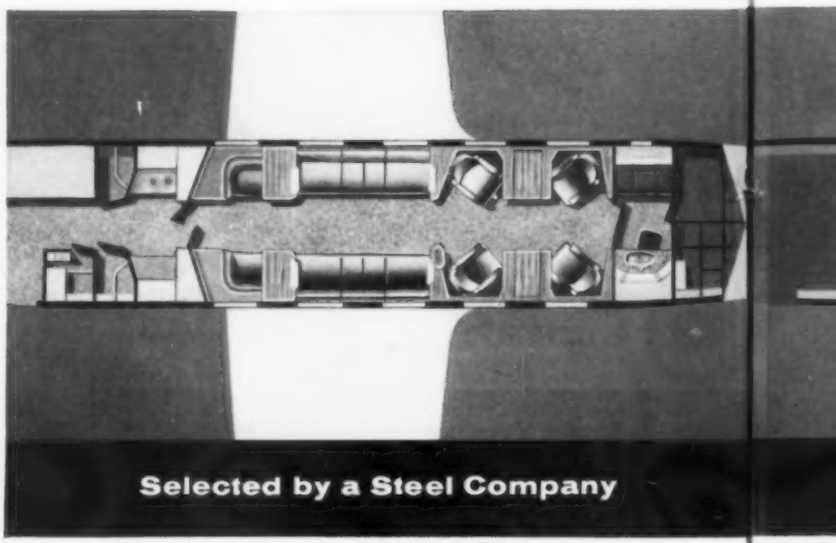
3021 AIRPORT AVENUE, SANTA MONICA, CALIFORNIA • EXmont 1-5281

Other PacAero Specialties: On all multi-engine aircraft – design and installation of custom interiors; installation of radar, navigation, communications and electronic equipment; fuel system expansion; airframe overhaul and painting. Also, Lodestar modification to JATO boost; Learstar manufacture; Alternate fuel metering systems; Spraymat anti-icing, de-icing systems.

THE GRUMMAN "GULFSTREAM"



Picked by an Oil Company



Selected by a Steel Company

Isn't this

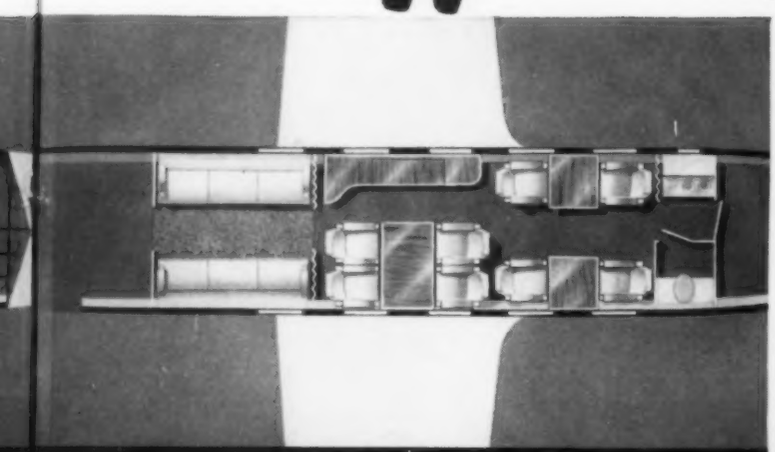
The Business Aircraft

for your Company, too?

The cutaway views above show interior layouts selected by four different purchasers of the Gulfstream. Each interior has been designed and fitted out to individual specification.

Many leading American companies have selected the exceptional Gulfstream over all other business aircraft on the market. Thirty-six are already operating in different parts of the country.

The Gulfstream will carry 10, 12 and 14 passengers. You will cruise at 350 mph. Power: 2 superb Rolls-Royce Dart engines. You have a range of 2,200 miles, plus reserves of 200 miles



Chosen by a Publisher

Bought by a Chemical Company

and 45 minutes. And the Gulfstream has what some aircraft in its class *haven't*—the ability to get in and out of the smaller airports with ease . . . those with 3,500-4,000 foot runways.

At 25,000 feet, the pressurized Gulfstream provides a cabin altitude of 5,500 feet. You fly in air-conditioned comfort—and safety—above the weather and traffic.

To date, Grumman has built 25,000 aircraft. This experience is aboard the Gulfstream. And Grumman engineering provides a structure designed to withstand fatigue for the equivalent of more than 50 years of operation! Performance, utility, reliability, safety? Of course. And great beauty, too.

The Grumman Gulfstream is an extraordinary business transport. We think your executives will agree with your chief pilot's evaluation of the aircraft when our distributor demonstrates its many outstanding features.

Corporation executives and pilots are invited to inspect the Gulfstream and arrange for demonstration flights through one of the following distributors: Atlantic Aviation, Wilmington, Delaware; Pacific Airmotive, Burbank, Cal.; Southwest Airmotive, Dallas, Texas; Timmins Aviation, Montreal.

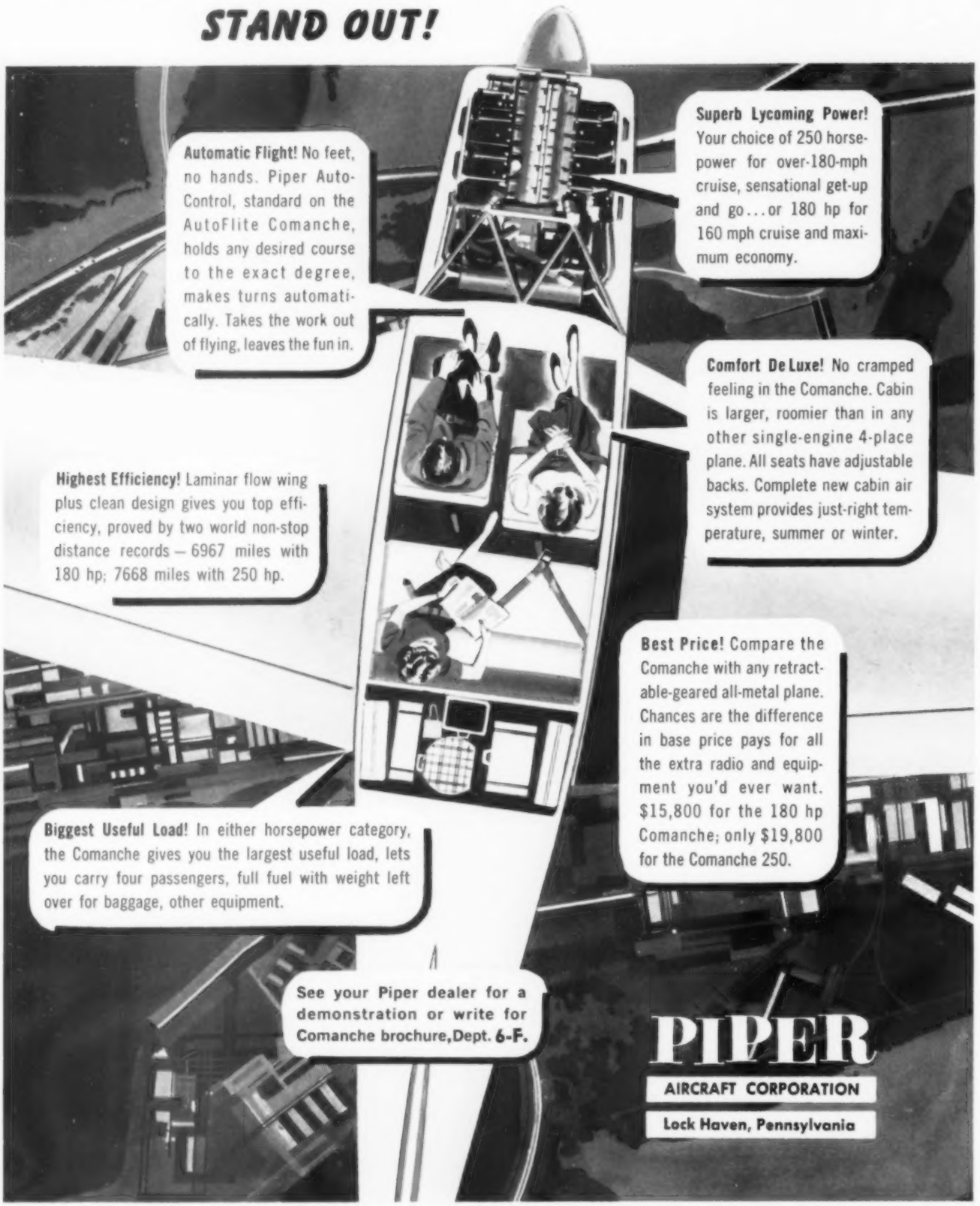
Aboard the GULFSTREAM, Beauty is more than skin deep!

GRUMMAN

AIRCRAFT ENGINEERING CORPORATION

Bethpage • Long Island • New York

NO MATTER HOW YOU LOOK AT THE *Comanche* ITS SUPERIOR FEATURES STAND OUT!



Automatic Flight! No feet, no hands. Piper Auto-Control, standard on the AutoFlite Comanche, holds any desired course to the exact degree, makes turns automatically. Takes the work out of flying, leaves the fun in.

Superb Lycoming Power! Your choice of 250 horsepower for over-180-mph cruise, sensational get-up and go... or 180 hp for 160 mph cruise and maximum economy.

Comfort De Luxe! No cramped feeling in the Comanche. Cabin is larger, roomier than in any other single-engine 4-place plane. All seats have adjustable backs. Complete new cabin air system provides just-right temperature, summer or winter.

Highest Efficiency! Laminar flow wing plus clean design gives you top efficiency, proved by two world non-stop distance records — 6967 miles with 180 hp; 7668 miles with 250 hp.

Best Price! Compare the Comanche with any retractable-geared all-metal plane. Chances are the difference in base price pays for all the extra radio and equipment you'd ever want. $15,800 for the 180 hp Comanche; only $19,800 for the Comanche 250.

Biggest Useful Load! In either horsepower category, the Comanche gives you the largest useful load, lets you carry four passengers, full fuel with weight left over for baggage, other equipment.

See your Piper dealer for a demonstration or write for Comanche brochure, Dept. 6-F.

PIPER
AIRCRAFT CORPORATION
Lock Haven, Pennsylvania

WHY NOT A BELL FOR THE BOSS?

The beautiful helicopter you see warmed up and rarin' to go is the famed Bell 47J-2. Around the world, they call it the Helicopter of Presidents. It's a four-placer, sporting a Horton & Horton-appointed cabin . . cruises smooth as a cloud at speeds up to 100 miles an hour . . and it's probably the safest vehicle ever built. Not only will this Bell pick up and deliver your bosses almost door-to-door . . it will give them the most carefree rides of their lives. And when they're not aboard, your Bell can shuttle important visitors from the airport, dazzle customers with quick trips anywhere.

As a traffic specialist, you'll want all the facts on Helicopter Travel in Business. So why not write our Commercial Sales Manager now?

The helicopter
is here . .
and business executives
fly more Bells
than all other makes
combined.

BELL

Bell Helicopter Corporation, Fort Worth, Texas, Subsidiary of Bell Aircraft Corporation . . in its 25th year

Why the Bonanza, Which Costs $2,871 More to Buy, Actually Costs You $4,714 LESS* to Own and Fly

than the next-fastest single-engine plane:

Let's get down to earth about airplane costs:

Because published figures show that Airplane "C" and Airplane "P" are priced $2,871 to $5,464 lower than the new Bonanza M35, it may appear that these airplanes are better buys.

But, when you consider equal equipment, plus these important FACTS:

(a) Lower operating costs
(b) Extra travel time saved because of the Bonanza's higher speed
(c) Higher resale (or trade-in) value
(d) Extra-value flying conveniences
(e) Extra tax savings (favorable depreciation)

. . . the Beechcraft Bonanza actually costs you $4,221 to $4,714 LESS* than the others. Ask any Beechcraft distributor or dealer to show you these figures in black and white.

*Based on normal 5-year investment.

Because the Beechcraft Bonanza is recognized as being, without question, the finest, fastest and most comfortable single-engine all-metal business plane ever built, some people are under the erroneous impression that a Bonanza costs many thousands of dollars more to buy than its nearest competitors.

This is not true. The facts of life are that, comparably equipped, the top-performance Bonanza costs just a little bit more to *buy*—and actually *costs less* to own than its principal competitors.

For example, you may buy other single-engine airplanes for only $2,871 to $5,464 less, but a Bonanza with similar equipment, will actually cost you $4,221 to $4,714 less to own and fly. The time-saving superiority and the low maintenance of the Bonanza's inherently better design add up to a better flying investment for you and your business.

From the day you take delivery on a Bonanza, you start saving money in almost every way you can think

of. You save on operating costs. You can expect lower maintenance, because of the Bonanza's rugged design. Insurance costs are minimum. Tax savings are greater. And you will cut 35 to 61 hours off the time required to travel each 100,000 miles—a huge saving in itself.

In addition, the Bonanza has consistently returned to its owners a considerably higher percentage of its purchase price than its nearest competitors. And it still does today.

So before you buy any single-engine business plane at any price, see your Beechcraft distributor or dealer. Have him show you, in black and white, how you can own and operate a Bonanza at less cost than others with which it may be compared.

For details of low-cost Beech financing and leasing plans, write Public Relations Dept., Beech Aircraft Corp., Wichita 1, Kansas, U. S. A.

FASTEST

LOWEST OPERATING COST

HIGHEST RESALE VALUE

Beechcraft

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

"A goin' piece o' thunder . . ." One of Piedmont's new F-27 prop-jets swings into the Winston-Salem, N. C., airport. These jet-age beauties are fast, smooth, quiet—have the latest in weather-radar and other electronic navigational devices.

"...A Goin' Piece O'Thunder..."

—another in a series by
HERB FISHER
international aviation authority, veteran test pilot, author

A behind-scenes report on Piedmont Aviation, Inc. of Winston-Salem North Carolina

When Piedmont Aviation completes an aircraft overhaul job, Service Manager C. E. "Eddie" Culler often flight-tests the result himself. When he gets back, he announces in soft Carolina drawl:

"*Now, there's a goin' piece o' thunder!*"

From that benediction, Piedmont service personnel know they've chalked up another job well done.

Sometimes Eddie is referring to the new F-27 prop-jet airliner which Piedmont Airlines (a division of Piedmont Aviation) now has in service. Often as not, however, he's referring to smaller aircraft of various make and vintage . . . for Piedmont has built a solid reputation on its slogan—"Top Flight Service"—and today is the largest, most modern and *complete general aviation service center* in the South Atlantic States—New York to Miami.

This month marks the 20th anniversary of the company's founding. Piedmont started as an aviation sales-service facility. During the war, however, Piedmont operated as a government-approved flight training base—and as the only government-approved airframe and engine overhaul station between Washington, D.C., and Atlanta. (On engine-overhaul, Piedmont turned out five Lycomings a day.)

After the war, Piedmont went back to general aircraft sales and service . . . established charter, air taxi and civilian flight school operations . . . and founded its Piedmont Airlines Division. In 1958, the airline division took delivery on its first Fairchild F-27, a 36-passenger prop-jet powered by Rolls-Royce Dart engines. Piedmont's $7 million order for eight F-27's is the largest ever placed by any of the nation's 13 local-service airlines and represents the most complete re-equipment program undertaken in the local-service field.

Piedmont Airlines today operates its eight F-27's and 17 DC-3's over a 3,400-mile route system serving 50 cities in Kentucky, North and South Carolina, Ohio, Virginia, West Virginia, Tennessee and the District of Columbia. Average miles flown daily exceeds 22,000. One of the largest of the 13 local-service airlines, Piedmont has carried 3½ million passengers—515,660 in 1959 alone.

Piedmont Aviation, Inc., owns 30 additional planes for charter service, air taxi, flight instruction and Parts Department operations. Its independent divisions are distributors for Beechcraft, Piper and Fairchild F-27 aircraft. The company ranks high among honored leaders in Beech and Piper sales—and is one of two approved F-27 service centers in the U.S.

In the charter operation, Piedmont's single- and multi-engine planes haul passengers, cargo, aerial photographers —day or night, instrument or visual.

In some cases, on a long-term basis, *Piedmont furnishes corporations with the complete "business-flying package"—airplanes, crews and maintenance*—in effect, leasing both men and equipment.

(Advertisement)

"Red" Willard, Supt.-Engine Overhaul (l), tells Herb Fisher how he scaled and built this remarkable flying-model Viscount in 3,000 man-hrs.! Red designed, built *everything*—engine, brakes, in-flight throttle and guidance controls included—has won top honors in meets over the country. Plane weighs 8 lbs., has 1¼ hp, 18,000 rpm engine, takes off at 35 mph in 300 ft., flies 10 min. at 60 mph. Says Red: "This plane's my pride and joy—I wouldn't risk it in the air on anything but Champion spark plugs."

"Long life and dependability, that's where Champion has it over any plug going," Archie Ferguson, Supt.-Base Maintenance (l), tells Fisher.

In its flight school operation, Piedmont gives basic to Link to ATR instruction, training pilots for other airlines as well as for corporations.

The Parts Department operation itself calls for a lot of company flying: Piedmont is one of the largest wholesale parts distributors in the Atlantic States and *supplies 400 aviation retail outlets*—including other fixed-base operators. Piedmont's quick-service "parts airlift" helped increase distribution volume by 24 per cent last year.

What impresses me most about Piedmont's service center at Winston-Salem is its *completeness*. This service center literally *does everything* right in one establishment—airframe and engine overhaul to plush interior conversions that have won national honors. And on all *kinds* of aircraft—from company-owned DC-3's and F-27 prop-jet airliners to "outside" business and private craft of every description. (Forty per cent of Piedmont's regular maintenance and conversion is done for outside corporations.)

"No job is too large or too small," R. S. Northington, Vice-President, told me. "And we feel our service personnel are the best-qualified anywhere—because they've had long experience working on different kinds of planes every day. On executive aircraft, for example, we'll put a lot of men—two shifts—on one airplane. This keeps downtime to a minimum unmatched by competition.

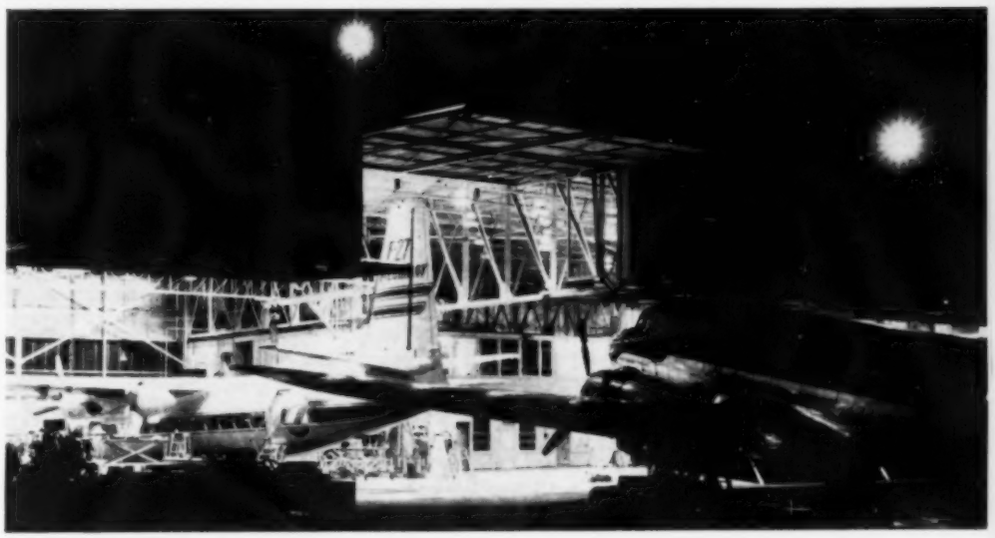
"We're backed on-the-spot by a *complete* parts inventory—in excess of a half-million dollars—and we know from our *experience* what's *best* in the way of parts and equipment. Herb, that's where your specialty—the Champion spark plug—comes in.

"We've had 20 years' experience with Champions—in all kinds of aircraft engines, operating under all kinds of conditions. Champions *can't be beat for dependable, long-life performance*. We should know!"

Tom Davis, Piedmont President, told me this: "With our airline alone flying 22,000 miles a day—and with a takeoff somewhere on the system every 4 minutes between 7 A.M. and midnight, every day—it's *absolutely mandatory that our engines are fired by the most dependable spark plugs*. In our type of operation, as you can see, we could have serious lead-fouling problems—but Herb, we just don't *have* fouling problems with present-day Champions! You can't beat the Champion REB37N in DC-3's, for example!"

A check with D. R. "Red" Willard, Supt.-Engine Overhaul, drove Tom's point home: At Piedmont, Champions are cleaned at 400 hours, replaced at 800 hours!

Eddie Culler summed it up: "The Champion plug? Herb—now *there's* a goin' piece o' thunder! . . ."



Day and night, Piedmont services F-27 prop-jets, DC-3's—planes of every make and size—in most modern and *complete* maintenance facility between New York and Miami. Piedmont employs 1,150.

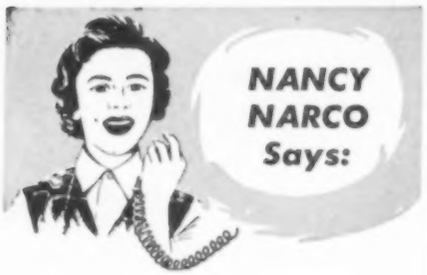
Piedmont President Tom Davis takes off on company business in Champion-fired Twin Beech Travelair. Vice-President Bob Northington and Fisher (l/r) see him off.

Doug Shropshire, Champion Aviation Representative, and Piedmont Vice-Presidents Bob Northington and H. K. Saunders (l/r) discuss Piedmont's new F-27 prop-jets.

Champion Salutes Piedmont Aviation on its 20th Anniversary

CHAMPION SPARK PLUG COMPANY • TOLEDO 1, OHIO

(Advertisement)



FREQUENCY GUIDE

Keep getting lots of requests from bewildered newcomers for an explanation of the various basic VHF radio frequencies used around airports and en route. Here's a quick rundown.

1. *To Talk to Towers.* 122.5 is the basic frequency, except in certain congested areas where 122.6 and 122.7 are used instead. Or you can communicate Simplex-fashion. That is, talk to the tower on the same frequency they'll use to talk back at you. If you have the necessary frequencies this is preferred since other aircraft can hear you report in and can get a better "picture" of traffic around the airport.

2. *On the Ground.* Virtually every airport with a tower uses a separate frequency to control taxiing aircraft. 121.9 is used universally for Ground Control, except in congested areas where some airports use 121.7.

3. *En Route.* When you're going cross country and wish to call an FAA Flight Service Station, for weather, position report or other assistance, call them on 122.1 and indicate what frequency you expect their reply on. They can reply to you on their Omni frequency, LF range, or 122.2. However, before calling an Omni station be sure to check on the chart to be sure there's someone down there. A "W" indicates No Voice. 126.7 is also used for en route communications.

4. *Unicom.* Most active airports without towers have a Unicom ground station. Talk to them and listen on 122.8. At airports with a tower, one and only one Unicom station is also permitted, operating on 123.0 — talk and listen.

5. *Emergency.* 121.5 is the universal emergency frequency, guarded by all towers, FAA stations, military installations, etc. It should be used only in case of actual emergency or if you're unable to make contact on other frequencies.

Regards,

Nancy

NARCO • Fort Washington, Pa.

P.S. We've just worked up a compact "sticky-back" placard listing all these basic frequencies and their functions. Just the thing to stick on your instrument panel. For your FREE placard see your Narco dealer or write me. Nancy.

Any frequency they want...

...you've got!

with the narco Mark V

Any civil frequency in use today is at your finger tips with the sensational new Narco Mark V—all-channel VHF transmitter/receiver. Departure control, approach control, direct center, towers, even tenths, odd tenths . . . all transmitting channels from 118 to 126.9 are automatically yours when you install the new Mark V in your airplane. And they'll know you're coming when your voice booms out with a big, fat five watts (or more) of transmitting power!

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NEWEST BELL MODEL 47 is this G-3 version with turbo-charged Franklin engine rated at 225 hp. from sea level to 15,000 ft. Seven out of ten commercial helicopters are Bell 47's. This one belongs to Aero-Boeing, Seattle firm which operates 15 Bells.

NEWEST HILLER 12E has 305-hp. Lycoming engine. This one is shown with Link Luckett of Anchorage, who used it last month to rescue climbers stranded high up on Mt. McKinley. In highest-altitude rescue on record, Luckett flew Hiller 12E on six missions to 18,000-ft. ridge in turbulent conditions. Luckett operates a copter charter service in Alaska.

AERIAL TRAFFIC CONTROL is one of hundreds of helicopter jobs performed by commercial operators. Shown over Candlestick Park at San Francisco is Hiller 12E whose pilot not only locates traffic jams but hovers over them shouting instructions through a transistorized 50-watt Fyr-Fyter Penetrator loudspeaker attached to landing gear. Fifteen-pound Penetrator system carries voice a full mile.

323 Operators Flying 964 Helicopters

APPROXIMATELY 964 helicopters of seven different makes are being operated in the United States (including Alaska) and Canada by some 323 operators, according to the latest 1960 compilation released by the Helicopter Council of the Aerospace Industries Association.

Seven out of ten of the helicopters are Bell Model 47, which total 690, most of these are 3-place utility copters. The other 270-odd machines include 136 larger Sikorsky's, 94 3-place Hiller Model 12's, 16 turbine-powered Republic Alouettes, 22 large Vertols, 3 Kaman 240's and 3 2-place Brantly B-2's.

Almost 700 of the total are operated in the U.S. and Alaska, with 240-odd being used in Canada.

In type of operation, 539 helicopters are engaged in workaday "charter" or commercial activities, 114 in corporate or executive flying and 40 are operated by government agencies in the U. S. In Canada, the breakdown is 201 commercial charter machines, 13 corporate or executive copters and 57 operated by government agencies.

Of the 323 operators, 203 are commercial (173 in the U. S. and 30 in Canada), 89 are corporate-executive (79 U. S. and 10 Canadian) and 31 are government agencies (20 U. S. and 11 Canadian).

Twelve states have 10 or more commercial charter helicopters and they rank as follows: California 121, Louisiana 54, Pennsylvania 43, Illinois 28, Washington 26, Oregon 22, Florida 21, Alaska 20, Texas and Oklahoma 15 each, New York 14 and Missouri 11. In corporate-executive helicopters, Texas leads with 37, followed by California with 20.

Arranged by states, with cities listed where helicopters are operating, the distribution of commercial helicopters in the U.S. and Canada is as follows:

ALASKA: 20 helicopters including 12 Bell-47, 6 Hiller-12 and 2 Republic Alouette; 12 commercial operators at Anchorage, Spenard, Fairbanks, King Salmon, Juneau, Ketchikan, Homer and Hamilton Acres. Operators with 3 or more helicopters: Inlet Airways, Homer, with 3 Bell-47 and 1 Republic Alouette; Temsco Helicopters, Ketchikan, with 4 Hiller-12; Polar Helicopters, Spenard, 3 Bell-47.

ARIZONA: 5 helicopters including 3 Bell-47 and 2 Hiller-12; operators at Mesa, Phoenix and Tucson.

ARKANSAS: 1 Bell-47 at Pine Bluff.

CALIFORNIA: 201 helicopters including 137 Bell-47, 22 Hiller-12, 25 Sikorsky, 7 Republic Alouette, 6 Vertol, 3 Kaman-240 and 1 Westland-Sikorsky. Total of 56 commercial operators located at: Los Angeles, Long Beach, San Fernando, San Francisco, Santa Monica, La Canada, San Diego, Torrance, Ventura, Fresno, Van Nuys, Fortuna, Bakersfield, Etna, Newport Beach, Hollywood, North Hollywood, El Segundo, Stockton, Lancaster, Sacramento, LaMesa, Redding, Oakland, Anderson, Lakewood, Anaheim, Davis, Inglewood, and Garden Grove.

Commercial operators with 3 or more helicopters: A-F Helicopters, San Fernando, 23 including 17 Bell-47, 3 Sikorsky S-58, 2 Sikorsky S-55 and 1 Westland S-55; Aetna Helicopters, Etna, 5 including 2 Bell-47, 2 Hiller-12 and 1 Republic Alouette II; Air-Watch Helicopters, Hollywood, 3 Bell-47; Agricultural Helicopters, San Fernando, 5 Bell-47; Ameco Helicopters, Caruthers, 5 Bell-47; Calicopters, Stockton, 11 Bell-47; Coast Rotors, San Diego, 6 including 5 Republic Alouettes and 1 Bell-47; Comet Copters, N. Hollywood, 3 Bell-47; Duschak's Helicopter Rotor Service, Torrance, 4 Hiller-12; Eddy-Molitor Helicopters, San Diego, 3 Kaman-240; ERA Helicopters, Ventura, 11 including 8 Bell-47 and 3 Sikorsky S-55; Fresno Helicopters, Fresno, 4 Hiller-12; Helicopter Corp. of America, Santa Monica, 4 Bell-47; Kern-Copters, Bakersfield, 6 including 5 Bell-47 and 1 Sikorsky S-55; LaMesa Helicopter Service, LaMesa, 3 including 2 Bell-47 and 1 Republic Alouette; Los Angeles Airways, 7 including 5 Sikorsky S-55 and 2 Sikorsky S-51 (5 Sikorsky S-61 on order); James M. Meade, Fortuna,

4 Hiller-12; National Helicopter Service & Engineering, Van Nuys, 9 Bell-47 leased to Helicabs, Los Angeles; Rick Helicopters, San Francisco, 27 including 21 Bell-47, 5 Vertol-HRP and 1 Hiller-12; Rotor-Aids and Rotor-Aids Offshore, Ventura, 16 including 11 Bell-47 and 5 Sikorsky S-55; Stansbury, Inc., Long Beach, 4 Sikorsky S-55 and 1 Bell-47; Utility Helicopters, Long Beach, 3 Bell-47; Whirl-Wide Helicopters, Fresno, 3 Hiller-12; World-Wide Helicopters, San Fernando, 4 Bell-47.

COLORADO: 3 helicopters, including 2 Hiller-12 and 1 Bell-47 operated at Denver by Helicopters, Inc.

DISTRICT OF COLUMBIA: 2 Bell-47.

FLORIDA: 21 helicopters, all Bell-47. Helicopters International, Lake Wales, 13 Bell-47, and Sun Line Helicopters, Miami, 5 Bell-47. Other operators at Miami, Hialeah, Boca Raton and Jacksonville.

GEORGIA: 1 Bell-47, Atlanta.

IDAHO: 6 helicopters including 4 Bell-47 and 2 Hiller-12. Roberts Aircraft, Boise, 3 Bell-47 and 2 Hiller-12.

ILLINOIS: 28 helicopters including 21 Bell-47, 6 Sikorsky S-58 and 1 Hiller-12. Chicago Helicopter Airways, Chicago, 5 Bell-47, 6 Sikorsky S-58 (has on order 2 S-58 and 6 S-61); Helicopter Air-Lift, Park Ridge, 11 Bell-47. Other operators at Blue Island, Joliet, Lockport, Northbrook and Lombard.

IOWA: 1 Bell-47, Cedar Rapids.

KANSAS: 1 Hiller-12, Topeka.

KENTUCKY: 1 Brantly B-2, Lexington.

LOUISIANA: 55 helicopters including 42 Bell-47, 7 Sikorsky S-55, 3 Sikorsky S-58 and 3 Republic Alouette with one operator having over 3 helicopters — Petroleum Helicopters, Lafayette, 36 Bell-47, 3 Sikorsky S-58, 7 Sikorsky S-55 and 3 Republic Alouette. Operators at Shreveport, Kenner, New Orleans and Baton Rouge.

MARYLAND: 2 helicopters; Bell-47 at Baltimore and Sikorsky R-6 at Lexington Park.

MASSACHUSETTS: 6 helicopters including 5 Bell-47 operated by E. W. Wiggins Airways at Norwood; 1 Hiller-12 at Lexington.

MICHIGAN: 4 Bell-47 of which 3 operated by Helicopter Airways Service at Metropolitan Airport; 1 Bell-47 at Reed City.

MINNESOTA: 4 helicopters including 3 Bell-47 and 1 Hiller-12, with operators at Minneapolis and St. Paul.

MISSOURI: 9 helicopters including 5 Bell-47 and 4 Hiller-12 with Remmert-Werner at St. Louis operating 3 Hiller-12 and operators at Kansas City, St. Louis, Lake Ozark and Hazelwood.

MONTANA: 3 Bell-47 operated at Missoula by Johnson Flying Service.

NEBRASKA: 1 Vertol-44 at Omaha.

NEVADA: 4 helicopters including 2 Bell-47, 1 Hiller-12 and 1 Brantly B-2 operated at Las Vegas by Las

(Continued on next page)

Commercial Helicopters in U. S. and Canada

Make	Commercial U. S.	Commercial Canada	Corporate-Executive U. S.	Corporate-Executive Canada	Govt. Agency U. S.	Govt. Agency Canada	Total U. S.	Total Canada	Total
Bell	398	136	72	11	30	43	500	190	690
Hiller	62	9	15	2	6	....	83	11	94
Sikorsky	46	47	25	....	4	14	75	61	136
Vertol	14	8	....	....	....	....	14	8	22
Alouette	13	1	2	....	....	....	15	1	16
Brantly	3	....	....	....	....	....	3	....	3
Kaman	3	....	....	....	....	....	3	....	3
Totals	539	201	114	13	40	57	693	271	964

127 Copters In Corporate-Executive Fleet

EIGHTY-NINE companies and executives own 127 helicopters in the United States and Canada, according to the Helicopter Council of the Aerospace Industries Association's latest 1960 survey.

Leading states, ranked by the number of executive and corporate helicopters in each, are Texas with 37, California with 20, Louisiana with 13 and Connecticut and New York with 9 each. Canada has 14.

Of the 127 executive and corporate helicopters listed, 83 are Bell Model 47, 25 are S-51, S-55 and S-58 Sikorsky's, 17 are Hiller-12's and 2 are turbine-powered Republic Alouettes (both owned by Republic Aviation).

Following is the Helicopter Council's listing of executives and companies owning helicopters in the U. S. and Canada:

CALIFORNIA: 18 helicopters including 13 Bell-47, 5 Hiller-12 — Bell Helicopter Western Div., Burbank, 2 Bell-47; Briles Mfg., El Segundo, 2 Bell-47 (also listed as commercial operator); Brown Beachamp Co., Los Angeles, Bell-47; California Insecticide Service, Lancaster, Hiller-12; Douglas Aircraft, Santa Monica, Bell-47; Jet Propulsion Laboratory, Pasadena, Bell-47; Charles V. Litton, Grass Valley, Bell-47; A. L. Newman, Kelseyville, 2 Bell-47; North American Aviation, Los Angeles, Bell-47; Northrop Aircraft, Hawthorne, Bell-47; Raymond Roesling, Long Beach, Bell-47; Southern California Edison, Los Angeles, Hiller-12; Transportation Engineering, Vernon, Bell-47, and following for which no information given: Bradford, Laws & Weatherly, Hollister; R. F. McPheeters, Long Beach, and Judge A. B. Ware, Paradise.

COLORADO: 4 Bell-47's, Colorado Interstate Gas, Colorado Springs.

CONNECTICUT: 9 helicopters including 5 Bell-47 and 4 Sikorsky S-55 — W. I. Clark Co., Hamden, Bell-47; D'Addario Construction, Bridgeport, Bell-47 and Sikorsky S-55; Frouge Construction, Bridgeport, Bell-47 and Sikorsky S-55; Roger Sherman Transfer, East Hartford, Bell-47; Angelo Tomasso, New Britain, Bell-47; United Aircraft, Bridgeport, 2 Sikorsky S-55.

FLORIDA: 3 Bell-47's, one each for Arthur Vining Davis, Miami; B. B. McCormick & Sons, Jacksonville Beach; and Edward Zywicki, Bean City.

IDAHO: 1 Bell-47, James Hall, Elk River.

ILLINOIS: 5 helicopters including 4 Bell-47 and 1 Hiller-12 — CKG Associates, Des Plaines, Bell-47; Fastener Corp., Franklin Park, Hiller-12; Meade Electric, Chicago, Bell-47; Radio Materials Corp., Chicago, Bell-47; United Manufacturing, Chicago, Bell-47, and Motorola, Chicago, no information.

INDIANA: 2 helicopters — Indiana Gear Works, Indianapolis, Sikorsky S-51, and C. B. Mansfield, Terre Haute, Bell-47.

IOWA: 1 Bell-47, Energy Manufacturing Co., Monticello, and Collins Radio, Cedar Rapids, no information.

LOUISIANA: 13 helicopters including 6 Bell-47 and 7 Sikorsky S-55 — California Co., New Orleans, 4 Sikorsky S-55 and 3 Bell-47; Continental Oil, New Orleans, 3 Bell-47 and 1 Sikorsky S-55; and Freeport Sulphur, New Orleans, 2 Sikorsky S-55.

MICHIGAN: 1 Hiller-12, Parsons Corp., Traverse City.

(Continued on next page)

ECONOMICAL VERSION OF COMPOUND HELICOPTER provides a detachable jet pod mounted on the side of a Kaman HU2K, as demonstrated by this model. Called a "booster," the 400-lb. pod contains a General Electric J85 turbojet engine of 2,600 lbs. thrust. Kaman Aircraft engineers estimate it will increase the Navy HU2K's speed 40%, lift 20% and range 17% as well as improving hovering and climb characteristics. Rotatable exhaust nozzle directs thrust for maximum boost vertically or forward. Pod is 50 ins. long, 30 ins. in diameter and has simple plug-in connector for easy attachment or removal by two men. No major modification of helicopter is required. Model was displayed last month.

OPERATORS FLYING 964 COPTERS

(Continued from page 93)

Vegas Airways.

NEW JERSEY: 4 helicopters including 3 Bell-47 and 1 Hiller-12 with operators at Newton and Pleasantville.

NEW YORK: 14 helicopters including 9 Bell-47 and 5 Vertol-44 with Eastern Helicopters at Amityville operating 3 Bell-47 and N. Y. Airways at LaGuardia operating 5 Vertol-44 and 1 Bell-47 (10 Vertol-107 on order). Other operators at N. Y. City, Saratoga Springs, White Plains and Buffalo.

OHIO: 3 Bell-47 at Cincinnati.

OKLAHOMA: 15 Bell-47 of which 14 are operated by Allied Helicopter Service, one of two operators at Tulsa.

OREGON: 22 helicopters including 11 Bell-47 and 11 Hiller-12. First National Lease Corp., Portland, operates 7 Bell-47, and Dean Johnson, McMinnville, operates 5 Hiller-12. Other operators at LaGrande, Troutdale, Sweet Home, Corvallis, Salem and The Dalles.

PENNSYLVANIA: 42 helicopters including 33 Bell-47, 5 Hiller-12, 2 Sikorsky S-55, 1 Sikorsky S-51 and 1 Brantly B-2. Operators with 3 or more helicopters: Keystone Helicopters, Philadelphia, 24 Bell-47, 2 Hiller-12, 1 Sikorsky S-51 and 1 Brantly B-2; Agrotors, Inc., Gettysburg, 3 Bell-47, and Carsons Helicopter, Perkasie, 2 Hiller-12 and 1 Bell-47. Other operators at Philadelphia, Bristol, Bedford, Dravosburg and Audubon.

RHODE ISLAND: 2 Bell-47 at Warwick.

SOUTH CAROLINA: 5 Bell-47 of which 3 are operated at Myrtle Beach by Inland Air Lines, with another operator at Spartanburg.

SOUTH DAKOTA: 1 Bell-47 at Huron.

TENNESSEE: 1 Bell-47 at Nashville.

TEXAS: 15 helicopters including 13 Bell-47 and 2 Vertol-HRP, of which Hawk Industries, Ft. Worth, operates 5 Bell-47 and 2 Vertol-HRP, with other operators at Ft. Worth, Corpus Christi, Houston, Dallas, Amarillo and Waco.

VIRGINIA: 2 helicopters, 1 Bell-47 at Norfolk and 1 Hiller-12 at Lynchburg.

WASHINGTON: 26 helicopters including 25 Bell-47 and 1 Republic Alouette. Aero-Copters, Seattle, operates 16 Bell-47 (has 3 Omega BS-12 on order); Cascade Helicopters, Yakima, operates 3 Bell-47; Helicopter Service Co., Yakima, operates 3 Bell-47 and other operators at Chelan, Seattle, Hartline and Wenatchee.

WEST VIRGINIA: 4 Bell-47 at Bridgeport operated by Helicopter Patrol.

WISCONSIN: 1 Bell-47 at Janesville.

WYOMING: 1 Bell-47 and 1 Hiller-12 at Greybull.

CANADA: 201 helicopters including 136 Bell-47, 47 Sikorsky's, 9 Hiller-12, 8 Vertols and 1 Republic Alouette. 31 commercial operators at Edmonton and Calgary in Alberta, Kelowna, Vancouver and Sidney in British Columbia, Flin Flon in Manitoba, Gander in Newfoundland, Karp, King City, St. Catherine's, Hamilton, Toronto and Ottawa in Ontario, Montreal, Mt. Royal, Naudville and Seven Islands, Quebec, and Dawson City, Yukon. Operators with 3 or more helicopters: Associated Helicopters, Edmonton, 13 Bell-47; Bullock Wings and Rotors, Calgary, 3 Bell-47; Foothills Aviation, Calgary, 3 Bell-47; Okanagan Helicopters, Vancouver, 22 Bell-47, 23 Sikorsky's and 2 Hiller-12; Corporate Semi-Public Helicopters, Vancouver, 7 Bell-47; Pacific Helicopters, Vancouver, 9 Bell-47 and 3 Hiller-12; Vancouver Island Helicopters, Sidney, 3 Bell-47; Dominion Helicopters, King City, 6 Bell-47 and 1 Hiller-12; Genaire, St. Catherine's, 5 Sikorsky; Kenting Helicopters, Toronto, 3 Sikorsky; Spartan Air Service, Ottawa, 16 Bell-47 and 8 Vertols; Autair Helicopter Services, Montreal, 15 Bell-47, 5 Sikorsky and 1 Republic Alouette; Northern Wings Helicopters, Seven Islands, 3 Bell-47, and Klondike Helicopters, Dawson City, 4 Bell-47 and 1 Hiller-12.

CORPORATE-EXECUTIVE COPTERS

(Continued from page 93)

NEW MEXICO: 1 Bell-47, Anaconda Copper Mining, Grants.

NEW YORK: 8 helicopters including 4 Bell-47, 2 Sikorsky S-55, 2 Republic Alouette and 1 Hiller-12 — Aeroflex Corp., NYC, 2 Bell-47; East Coast Food Corp., Riverhead, Hiller-12; Grumman Aircraft, Bethpage, Sikorsky S-55; Bell Aircraft, Buffalo, Bell-47; N. Y. Trap Rock Corp., West Nyack, Bell-47; Republic Aviation, Farmingdale, 2 Republic Alouette; Sperry Gyroscope, Ronkonkoma, Sikorsky S-55; and Summit Radio, NYC, no information.

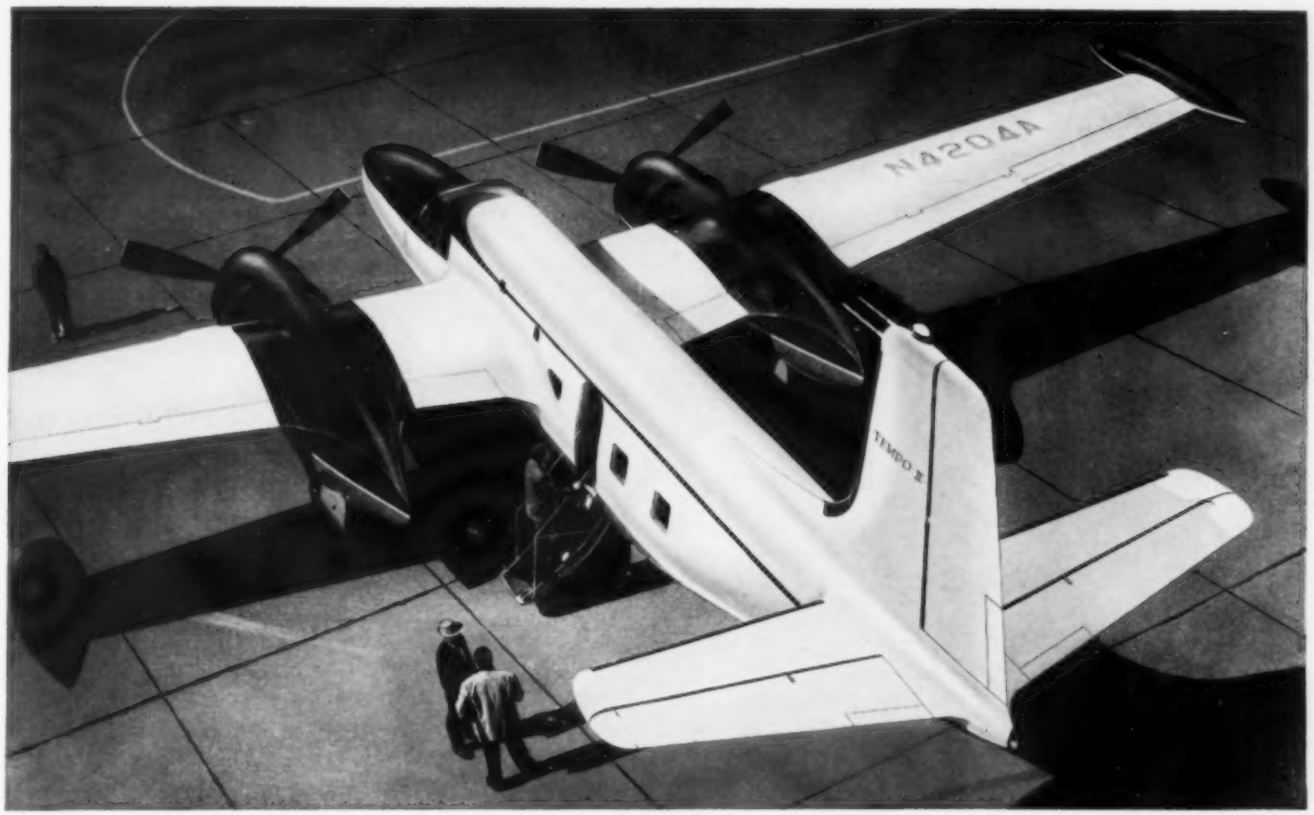
OHIO: Mertz Co., Cleveland, no information.

OREGON: 3 Bell-47 — Roderick Fraser, Bandon (2) and WOW Lumber, Eddyville.

PENNSYLVANIA: 4 helicopters including 3 Bell-47 and 1 Hiller-12 — Franklin Carson, Philadelphia, Bell-47; William Penn Broadcasting, Philadelphia (no information); Shawville Coal, Clearfield, Bell-47; Smith Pace Pipeline, Camp Hill, Bell-47, and Westinghouse Corp., Pittsburgh, Hiller-12.

TEXAS: 37 helicopters including 20 Bell-47, 6 Hiller-12, 6 Sikorsky S-55 and 5 Sikorsky S-58 — Bell Helicopter Corp., Ft. Worth, 8 Bell-47; Don Braman, Victoria, 2 Bell-47; Chance Vought Aircraft, Dallas, Sikorsky, S-58, Copano Oil, Victoria, Bell-47; Humble Oil, Houston, 6 Sikorsky S-55 and 4 Sikorsky S-58; Magnolia Petroleum, Dallas, Bell-47; John Mecom, Houston, 2 Hiller-12; Dennis O'Connor, Victoria, Bell-47; Tom O'Connor, Jr., Victoria, Bell-47; Dr. H. C. Robinson, Houston, Bell-47; Texas Gulf Sulphur, Newgulf, 4 Hiller-12 and 3 Bell-47; Tilden Tool Manufacturing, Austin, Bell-47; W. T. Waggoner Estate, Vernon, Bell-47; and following for which no

(Continued on page 123)



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Most cities with busy airports realize their usefulness but few have actually measured the extent of this usefulness to justify new airports and improved airport facilities. Airplanes come and go but nobody knows exactly how many come from where or what the traffic means in terms of trade and commerce. A new slant on this important municipal resource has been developed by the city of Fort Worth, Texas. Its aviation director, William G. Fuller, methodically "measures" this city's air traffic on a day-to-day basis and has come up with some data and methods of valuable usefulness to any city interested in developing its share of ever-growing air traffic.

"Our city has two municipal airports—one used by the scheduled airlines and another used exclusively by general aviation," Fuller explains. "Airline traffic at our Amon Carter Field is more readily charted, analyzed and generally understood than is the general aviation traffic at our Meacham Field, so this study concentrates on the latter because it involves so many unknowns. Local flying is easily charted —but nobody knows much about the many transient executive and private aircraft which move in and out with ever-increasing frequency. We must analyze this traffic in order to provide visiting aircraft with the services they need and thus attract more and more transients to our facilities and more business to our city."

How to get the answers was a problem which Fuller solved by keeping a daily record at Meacham Field. Its terminal building has six gate positions for visiting aircraft and those which purchase fuel at these gates are recorded in a file (no file is maintained on aircraft purchasing fuel on the ramps.) Fuller's record covers less than 2% of itinerant aircraft visits — he's after a cross-section.

"During 1959, for example, we recorded information on a total of 1,033 individual aircraft (those making more than one visit were recorded only once so that the file would not be cluttered with duplications)," Fuller explains. "These 1,033 aircraft provide a very interesting sample of general aviation traffic into our city. At the end of the year, the home bases of transient aircraft were spotted on the map, with a line connecting each recorded aircraft from its home base to our airport (now you can see why we wanted only a cross-section to work with).

"We came up with a very interesting and accurate picture. It tells a story which many airports take for granted with the result that its meaning is usually lost. All it takes is a glance at our traffic map to convince anybody of several important facts of an airport's life and growth. What our traffic maps show is the wide spread of our city's economic community of interest, and how our airport serves that interest. Transportation is the most important element in city economy. No city ever reached economic greatness or maintained that greatness without adequate transportation. First it was by rail, river or highway—now the key is adequate air transportation. Our maps show general aviation is a major factor to be reckoned with in providing a city with adequate air transportation

Devoted exclusively to general aviation, Meacham Field handles more traffic than when it was an airline terminal. It bases 260 airplanes, has 18 operators, has made profit annually since the Depression, averaged 21 landings or take-offs hourly last year. Note nearness to downtown Ft. Worth buildings in background.

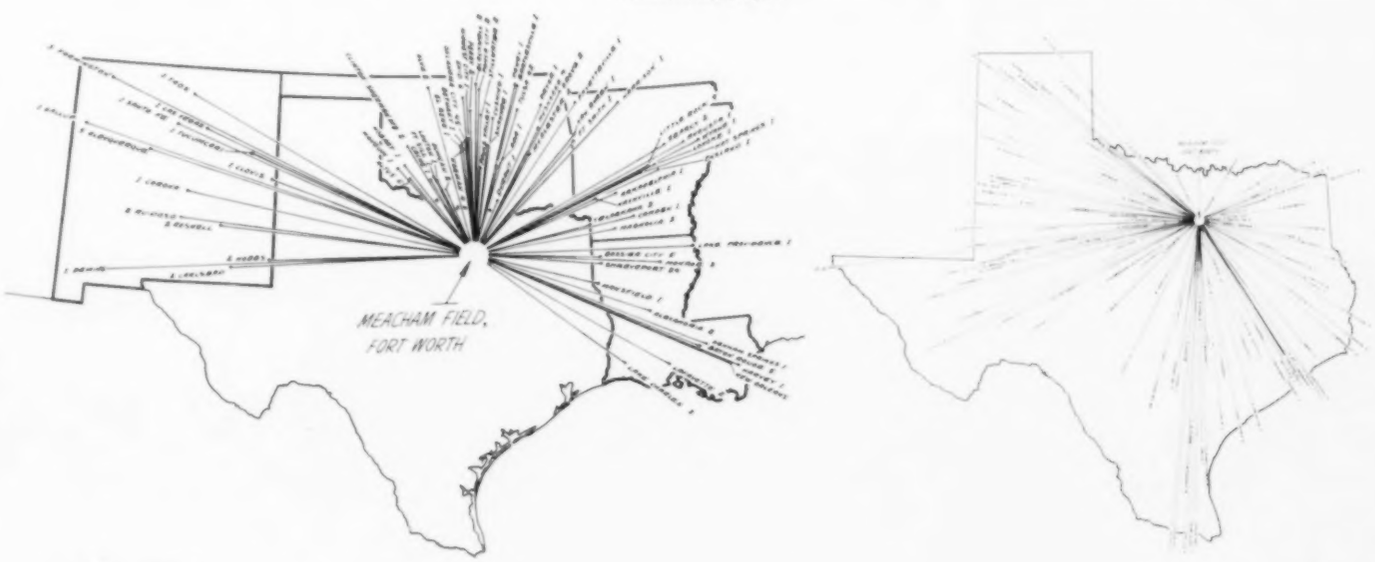
—(FLIGHT MAGAZINE Photo.)

—the economy of a city will be stunted without adequate facilities to attract and service the growing volume of business flying and general aviation as well as airline traffic."

These are revealing statements—they pin down the significance of general aviation, business flying and executive aviation. Fort Worth's Meacham Field, remember, is devoted exclusively to general aviation. It has 260 home-based aircraft. But for each departure or arrival by one of these home-based local aircraft, Fuller's records show two transient planes drop in or take off to and from points all over the country. These facts mean that the airport, as a municipal facility primarily maintained to take care of its own local general aviation requirements, is also serving the requirements of many more out-of-town aircraft than it bases.

"In other words, visiting aircraft contribute a major share to Meacham Field's economy, and our operations and planning for adequate facilities and services will have to take this fact into account if we are to obtain maximum advantages from the boom in general aviation activity," comments Fuller. "Visiting aircraft bring in people who are important to a city—they are business people engaged in activities which more often than not have some connection with our local economic affairs and can probably be cultivated to contribute an even larger share to our city's growth and prosperity in areas other than airport services."

Last year, Meacham's tower recorded 187,070 aircraft movements — an average of 21 landings or take-offs per hour, or one every three minutes for each of the 24 hours of every day. This is a lot of traffic; it ranks Meacham Field among the top 30 or



General aviation traffic into Meacham Field during the past year is shown by the flow-lines on these maps separating national (top), regional (below, left) and state patterns. Gate-side survey at terminal provided cross-section of less than two per cent of total transient aircraft movements, but this sample provided location of 380 home cities of 1,033 aircraft — 122 in Texas, 72 in the four adjoining states and 186 in other states from coast to coast. Individual planes were recorded only once although they may have made numerous stops.

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Phoenix—*Cutter Aviation, Inc.

ARKANSAS
Ft. Smith—Flying Service, Inc.
Little Rock—Central Flying Service

CALIFORNIA
Bakersfield—Alpha Aircraft
Fresno—Aero Sales & Service, Inc.
Oakland—*Golden Gate Aviation, Inc.
San Bernardino—Tri-City Airport
Santa Ana—Martin School of Aviation, Inc.
Santa Monica—Wade Air Service
Santee—Mission Aviation, Inc.
Stockton—O. L. Kidd
Van Nuys—*Norman Larson Co.

COLORADO
Denver—*Combs Aircraft, Inc.

CONNECTICUT
Rocky Hill—*Atlantic Aviation Corp.

DELAWARE
Wilmington—*Atlantic Aviation Corp.

FLORIDA
Jacksonville—Ren-Lin Aviation, Inc.
Lantana—Florida Airmotive, Inc.
Orlando—*Southern Airways of Florida, Inc.
St. Petersburg—Pinellas Aircraft, Inc.
Tampa—*Southern Airways of Florida, Inc.
Tamiami—Tursair Executive Aircraft Services, Inc.

GEORGIA
Albany—Albany Air Service
Atlanta—*Southern Airways Co.

ILLINOIS
Chicago—*Butler Airplane Sales
Rockford—*Butler Airplane Sales
Springfield—Capital Aviation
Lockport—Star Line Aviation, Inc.
Mt. Vernon—Outland Aviation Co.

INDIANA
Bloomington—Indiana Aviation Activities, Inc.
Elkhart—Hanley Air Activities, Inc.
Evansville—Crescent City Aviation
Fort Wayne—George H. Bailey Co., Inc.
Indianapolis—*Roscoe Turner Aeronautical Corp.
Terre Haute—Hulman Field Aviation, Inc.
Valparaiso—Valparaiso Aero Service, Inc.

IOWA
Cedar Rapids—Wathan Flying Service
Davenport—*Elliott Flying Service, Inc.
Des Moines—*Elliott Flying Service

KANSAS
Garden City—Western Planesales, Inc.
Kansas City, Kansas—*Topeka Aircraft Sales & Serv., Inc.
Topeka—*Topeka Aircraft Sales & Serv., Inc.
Wichita—*United Airplane Sales, Inc.

KENTUCKY
Lexington—*Blue Grass Airmotive, Inc.
Louisville—*Blue Grass Airmotive, Inc.
Owensboro—Owensboro Aviation Co.

LOUISIANA
Baton Rouge—Baton Rouge Aircraft, Inc.
Shreveport—*Currey Sanders Aircraft Co., Inc.

MARYLAND
Silver Springs—Atlantic Aviation Service, Inc.

MASSACHUSETTS
East Boston—*Atlantic Aviation Corp.

MICHIGAN
Grand Rapids—Grand Rapids Aviation, Inc.
Iron Mountain—Fontana Aviation, Inc.
Lansing—*Francis Aviation
Muskegon—Executive Air Transport
Ypsilanti—Air-O-Fleet Corp.
MINNESOTA
Hopkins—Executive Aero, Inc.
Mankato—Dean Brown
Rochester—*Gopher Aviation, Inc.
South St. Paul—*Gopher Aviation Sales
Worthington—Worthington Air Service
MISSISSIPPI
Jackson—Jim Hankins Air Service
MISSOURI
Kansas City—Topeka Aircraft Sales & Serv., Inc.
St. Louis—*Young Aviation Corp.
Valley Park—Midwest Aircraft Sales Corp.
MONTANA
Billings—*Montana Aircraft Co.
NEBRASKA
Omaha—*Robert Graf, Inc.
NEVADA
Las Vegas—Aero Vegas, Inc.
NEW JERSEY
Teterboro—*Atlantic Aviation Corp.
NEW MEXICO
Albuquerque—*Cutter-Carr Flying Service
NEW YORK
Mattydale—*Syracuse Aircraft Sales, Inc.
New York (Teterboro, N. J.)—*Atlantic Aviation Corp.
Rochester—*Page Airways, Inc.
NORTH CAROLINA
Charlotte—*Southern Airways Co.
Greensboro—Greensboro-High Point Air Services, Inc.
Winston-Salem—*Piedmont Aviation, Inc.
OHIO
Cleveland—Donges Aircraft Sales, Inc.
Columbus—Columbus Aviation, Inc.
Findlay—Eddy Flying Service, Inc.
Vandalia—*Ohio Aviation Co.
Youngstown—*Youngstown Airways, Inc.
OKLAHOMA
Muskogee—Sam's Flying Service
Oklahoma City—*Aircraftsmen, Inc.
Tulsa—*Tulsair Distributors, Inc.
OREGON
Portland—*Flightcraft, Inc.
PENNSYLVANIA
Dravosburg—Beckett Aviation Corp.
Erie—Derion Aviation
Philadelphia—*Atlantic Aviation Service, Inc.
Washington—Tri-State Aviation
RHODE ISLAND
Providence—Lippitt Aviation Corp.
SOUTH CAROLINA
Charleston—*Hawthorne Aero Service
SOUTH DAKOTA
Rapid City—Snedigar Flying Service
TENNESSEE
Chattanooga—ExecAir, Inc.
Memphis—*Jack Adams Aircraft Sales, Inc.
Nashville—*Blue Grass Airmotive, Inc.
Knoxville—East Tennessee Aircraft, Inc.
TEXAS
Abilene—Abilene Aviation Co.
Amarillo—*Tradewind Airport Corp.
Corpus Christi—Gulf Coast Aviation, Inc.
Dallas—*J. R. Gray Co., Inc.
Texair, Inc.
Fort Worth—Ritchey Flying Service
Houston—*Business Aircraft, Inc.
Midland—Rich Air Co.
Plainview—Claude Hutcherson
San Antonio—*Alamo Aviation, Inc.
Tyler—Texas Aviation Corp.
UTAH
Salt Lake City—*Utah-Idaho Aircraft Co.
VIRGINIA
Norfolk—*Piedmont Aviation, Inc.
WASHINGTON
Seattle—Sulak Sales & Service
Spokane—Western Aircraft Corp.
WISCONSIN
Madison—Wiscon-Air, Inc.
Milwaukee—*Butler Airplane Sales

so busiest airports in America with the distinction of being the only one of these airports that has no airline activity and among half of the leaders which have no military aviation base. But even more important for this exclusively general aviation airport is the fact that two-thirds of its aircraft movements were visiting aircraft — 122,969 of the total. If Meacham were operated solely for the benefit of its home-based aircraft and offered inadequate services to attract visiting aircraft, its national status would be mediocre and its operation would be a burdensome municipal liability instead of the economic asset it is.

All of which brings up the important question facing many cities and towns regarding new airports, improvements to existing airports and expansion of servicing facilities. In the battles being waged for bond issues can be heard the cries, "Why an airport? Who gets the benefits? Why spend money for facilities to accommodate Joe Blow's airplane and Sunday pilots? What's it to us if a Cub from Podunk wants to land here?"

Bill Fuller's traffic study answers those questions by showing how transient aircraft share the costs. Meacham Field has been a profitable operation for 25 of its last 30 years of operation (it was in the red during the depression years of 1934 through 1938). It has shown a 30-year net profit of a little over one million dollars. During the 1950-59 decade, the profit was $400,000 with $272,000 of this derived after the airlines moved across town to the new airline terminal airport. Prior to 1950, profits from Meacham went into the city's general funds but during the last ten years they have been plowed back into improvements and reserves for improvements. Incidentally, Fuller's profit figures are computed after deductions for amortization and interest charges.

Meacham Field represents an investment of over $3,250,000, one-third of which was contributed by various branches of the Federal government. The last Federal contribution was in 1944. A modest Federal sum is earmarked, however, toward installation of high-intensity approach lights during the coming year.

Principal revenue for Meacham Field comes from rentals of buildings, land and terminal building offices. A secondary major source is from sales of aviation fuel handled by the city. Eighteen operators at the field provide a complete range of services, including three flight schools.

This airport was the city's airline terminal for the first 28 years of its 35-year existence and dire predictions of an uncertain future beclouded its conversion in 1953 into an airport operated by the city exclusively for general aviation. It is an interesting sidelight that it had more aircraft traffic as a general aviation airport in 1959 than in any year in which it served airlines and other traffic combined except 1944, when military traffic was heavy.

Where does Meacham's transient general aviation traffic come from? Aviation Director Fuller's records show that 46% of the visiting planes are based in 124 other Texas cities, 24% come from 74 cities in the four states adjoining Texas, while the remaining 30% are based in 194 cities scattered through the remaining 45 states and Mexico.

"Our traffic records show we have a nationwide community of interest in general aviation transportation — 54% of visiting business aircraft come from cities located outside the boundaries of Texas," comments Fuller. "Thus our non-airline airport has established itself as a keystone in the business life of the community. I believe this distribution of visiting aircraft is typical of the situation at most metropolitan airports catering to business flying. The sooner everybody recognizes this fact, the better our airport facilities can serve general aviation. In the long run, those cities which can best serve the growing needs of general aviation will share the greatest business, industrial and economic benefits from aviation and from those who depend on aviation for business expansion."

OVERSEAS AVIATION MANAGERS of ten Shell Oil companies are touring leading air terminals in the U. S. to study ramp servicing. They are from India, Australia, France, Western Germany, Holland, Italy, Sweden, Switzerland, England and Japan.

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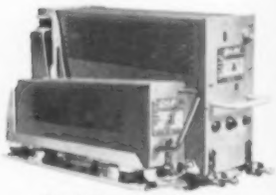
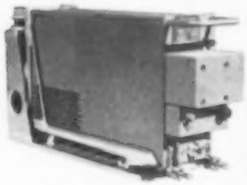


DN-560—560 Channel VHF Navigation System



DADF-1—LF and MF Automatic Direction Finder

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DARE INC.—TROY, OHIO

Designers and manufacturers of aircraft communications and navigation systems; and military electronic equipment.

CITY'S CAB ROLE

(Continued from page 76)

while, then leave it out. Don't make it necessary for the Examiner or the Board, or the staff people to wade through a thick volume of extraneous matter trying to find the important parts of your case. By *emphasis*, select the important items and present them so that they are instantly recognized and reduce the pages of extraneous material as much as possible.

Fourth is *neatness*, the same rule that used to apply in submitting term papers way back in school days. Prepare all of your submissions in such a way that they reflect favorably on your community. Let the appearance of your exhibit say "this is obviously from a city that deserves our consideration." The careless appearance of some city submissions cannot help but make the reader skeptical of the accuracy of the contents.

Fifth is — well, maybe this should have been first — a soul searching appraisal of the *true need for the service* sought. Do you honestly believe the service is sufficiently needed that it will be used enough to warrant continuation for many years? Local air service is an expensive product. Each year it costs the taxpayers a lot of money. When spent to provide needed services, this money is well invested. But, when it is spent to provide a service that the public doesn't patronize, then it's a costly waste.

A city that petitions the Board for air service, presents an inflated case, is awarded the service, and then loses the service for lack of patronage is worse off than if it never had the service at all. New industry can be expected to shun a city that has lost its air service. If future growth ever reaches the point where such lost service could be supported, then the stigma of past failure may be hard to overcome. Civic pride has wooed and won airline service for more than 50 cities after which civic economics wasn't strong enough to hold that service. This coming year may see the number double.

If convinced that the demand for airline service is real, then file that application. The CAB wants and strives to extend airline service to every community that can support the service. Remember, however, that your case is but one among a very great many. Use your ingenuity to see that your case can get the attention of the Board and its staff. It is not impossible that a good, sound case can be lost through the mediocrity of its presentation. Within the bounds of propriety and honesty you can make the case for your city stand out by following

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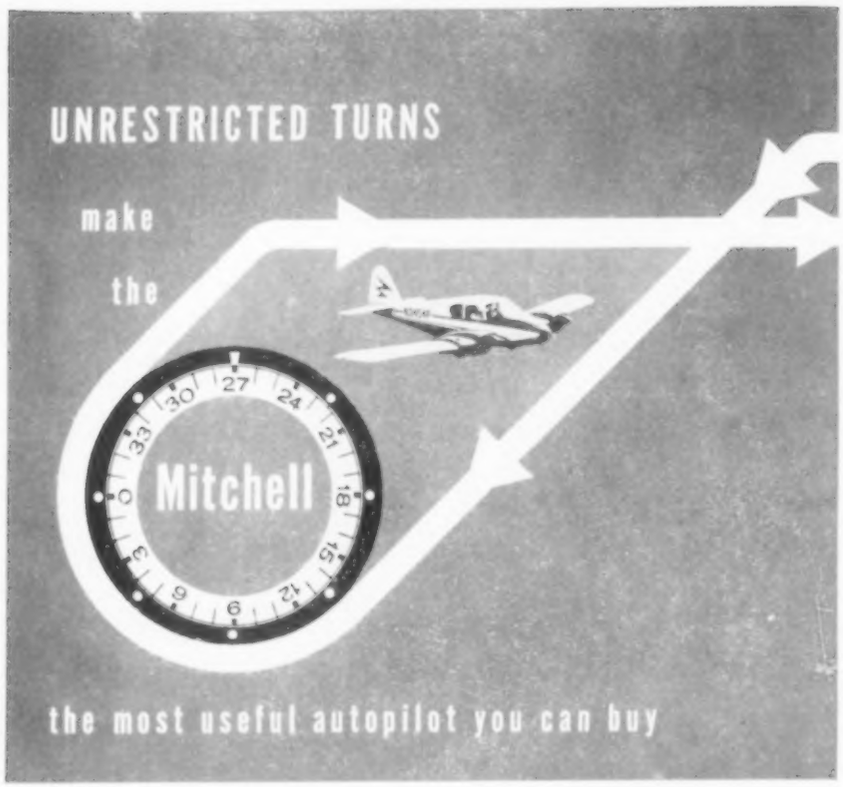
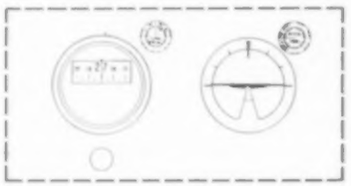


Fly precision holding patterns, procedure turns, IFR approaches . . hands-off . . . with the Mitchell all-transistorized automatic pilot. Unlike other lightweight autopilots, you never need to disengage or overpower the Mitchell to turn 180, 270, or 360 degrees. Simply turn the directional gyro the number of degrees you wish to turn and let your Mitchell do the flying. Whether you fly for business or pleasure . . . VFR or IFR . . . this superb eight-pound autopilot will introduce you to a new realm of precision flying. The Mitchell is simple and inexpensive to install, requires no warm-up, and uses less power than your instrument lights. FAA approved for almost all single-engine and light twin business aircraft.

Let your Mitchell dealer demonstrate this precision automatic pilot, used on more record-breaking endurance and distance flights than any other make. **$2425** for 12 volt system; **$2650** for 28 volt system. (Optional altitude and heading selectors extra).

For the pilot who wants the ultimate in an automatic pilot, Mitchell now offers two new optional features: **Automatic Heading Selector** that enables you to dial the exact heading you wish to fly; **Automatic Altitude Selector** allows you to dial your altitude.



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through on all of the procedural steps available to you and by the care and effort that is put into your presentation.

Effectively sell your city's needs for air service and its capabilities for supporting air service — this is essentially the purpose of your request and your case. Don't allow your efforts to become submerged and probably lost in the welter and monotony of mere procedure — make your facts and your case stand out from the routine. You do this just as any good salesman faced with the task of putting across a valuable product. You make your presentation appealing, to the point, convincing and compelling — by forcefully emphasizing the points of greatest importance.

If photographs of your city and its airport and its various resources will contribute meaning and forcefulness for a clearer understanding and appreciation of your needs — use good quality pictures and illustrations in your presentations. If a witness has important information for the Examiner, make sure before he testifies that he also has the ability to impress the Examiner with the importance of his information. If a chart can express some of your statistics more impressively than mere tabulated pages — put across your point with a good chart.

The whole point is that you are selling something of great value to your city and in the process you are competing against others for the attention and interests of a government agency which must understand and appreciate your information before it can act favorably upon it.

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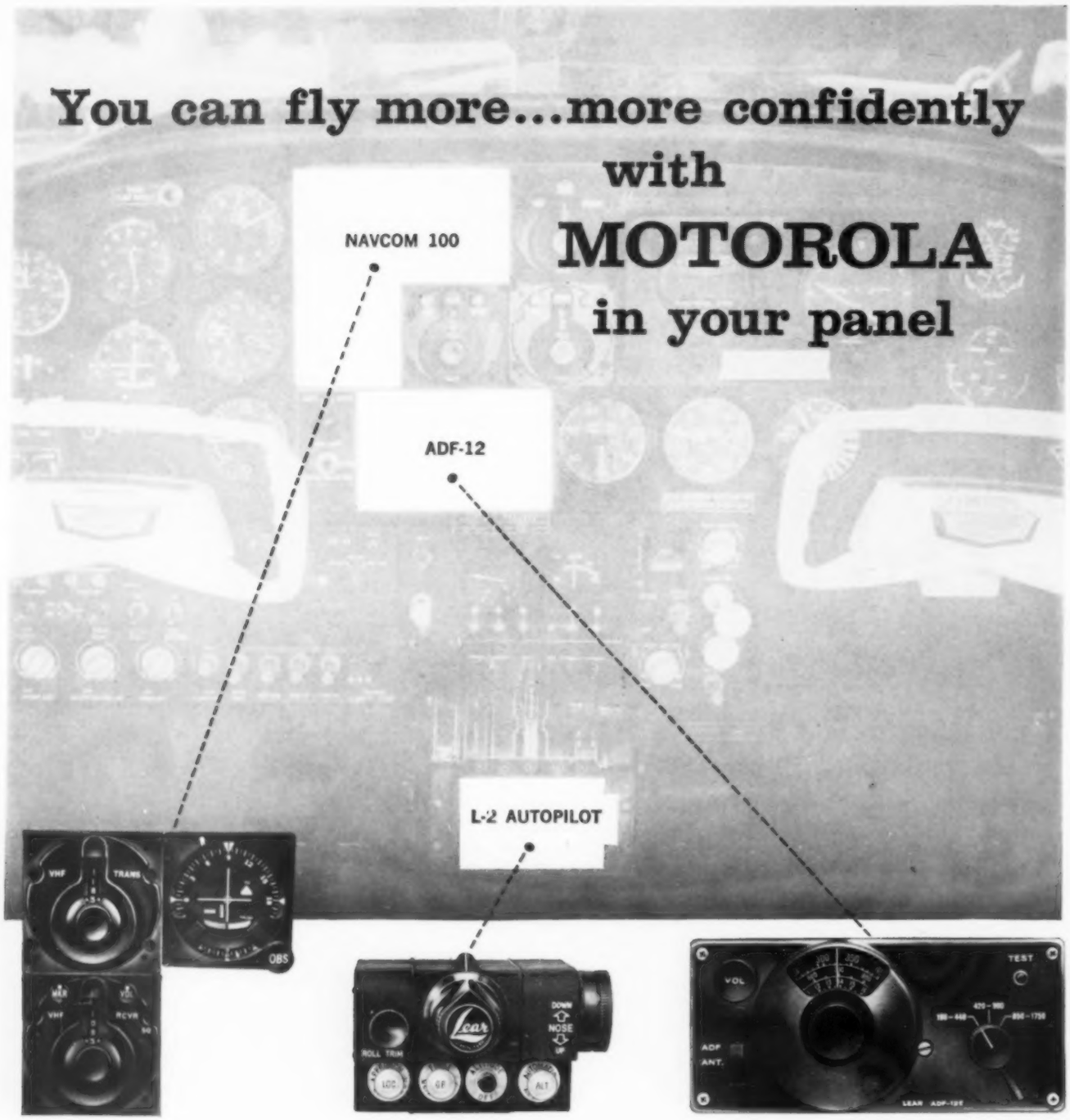

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LOCAL SERVICE AIRLINES
Comparison of Revenue Express and Freight Ton-Miles Flown
1958 - 1959

Carrier	1958	1959	% Increase
Allegheny	460,393	604,885	31.4
Bonanza	124,538	133,680	7.3
Central	141,839	188,895	33.2
Frontier	773,534	903,657	16.8
Lake Central	174,266	210,388	20.7
Mohawk	345,596	394,260	14.1
North Central	406,476	758,501	86.6
Ozark	401,782	605,287	50.7
Pacific	149,198	155,300	4.1
Piedmont	298,478	355,486	19.1
Southern	211,877	295,662	39.5
Trans-Texas	432,870	545,470	26.0
West Coast	134,848	183,654	36.2
Totals	4,055,695	5,335,125	31.5

—(Ray & Ray Compilation)

LOCAL SERVICE AIRLINES
Comparison of Total Non-Mail Revenue (Cents Per Revenue Mile)
1958 - 1959

Carrier	1958	1959	% Increase
Allegheny	97.29	110.04	13.11
Bonanza	70.72	91.05	28.75
Central	53.17	59.65	12.19
Frontier	72.48	67.27	(7.19)
Lake Central	70.87	81.05	14.36
Mohawk	135,96	153,93	13.22
North Central	82.83	89.81	8.43
Ozark	85.57	85.08	(0.57)
Pacific	91.78	111.99	22.02
Piedmont	85.44	99.39	16.33
Southern	72.37	72.93	0.77
Trans-Texas	63.83	66.72	4.53
West Coast	74.66	90.28	20.92
Average	82.72	90.67	9.61

—(Ray & Ray Compilation)

LOCAL SERVICE AIRLINES
Comparison of Average Passenger Loads
1958 - 1959

Carrier	1958	1959	Increase
Allegheny	13.3	14.5	1.2
Bonanza	10.5	12.5	2.0
Central	7.2	7.8	0.6
Frontier	10.1	8.8	(1.3)
Lake Central	9.6	10.5	0.9
Mohawk	17.3	19.2	1.9
North Central	11.1	11.8	0.7
Ozark	11.4	11.0	(0.4)
Pacific	15.5	17.4	1.9
Piedmont	11.1	12.7	1.6
Southern	10.3	9.5	(0.8)
Trans-Texas	9.0	9.2	0.2
West Coast	11.4	13.5	2.1
Average	11.5	12.1	0.6

—(Ray & Ray Compilation)

LOCAL SERVICE AIRLINES
Comparison of Total Operating Expense (Cents Per Revenue Ton-Mile)
1958 - 1959

Carrier	1958	1959	Increase
Allegheny	108.3	111.7	3.4
Bonanza	110.3	114.8	4.5
Central	168.8	160.1	(8.7)
Frontier	105.9	134.3	28.4
Lake Central	127.9	119.1	(8.8)
Mohawk	101.8	96.7	(5.1)
North Central	101.5	108.6	7.1
Ozark	107.0	107.1	0.1
Pacific	88.1	87.1	(1.0)
Piedmont	101.9	113.2	11.3
Southern	117.7	127.0	9.3
Trans-Texas	112.9	105.9	(7.0)
West Coast	117.7	126.6	8.9
Average	107.8	112.1	4.3

—(Ray & Ray Compilation)

1959 TRAFFIC RECORD AT LOCAL SERVICE STOPS

(Continued from page 60)

Rank 1959	Rank 1958	City and State	Carrier	Passengers Boarded 1959	Passengers Boarded 1958	Percent Change 1959/58	Passengers Boarded Per Departure
386	336	Danville, Va.	PI	659	760	—13.3	1.2
387	339	*Glendive, Mont.	FL	651	694	— 6.2	1.0
388		Salem, Ore. (1)	WC	651			1.2
389	355	*Marfa, Texas (4)	TT	649	572	13.4	1.1
390	343	*Rawlins, Wyo.	FL	623	676	— 7.9	1.0
391		Midland, Texas (1) (4)	TT	622			4.9
392	348	*Safford, Ariz.	FL	621	623	— .4	.9
393	340	*Pittsburg, Kans.	OZ	607	691	—12.2	.9
394		Great Falls, Mont. (1)	FL, WC	592			2.5
395		*DeRidder, La. (1)	TT	568			.7
396	368	*Tonopah, Nev.	BL	539	380	41.8	1.3
397	338	*Magnolia, Ark.	TT	524	695	—24.7	.6
398		*St. George, Utah (1)	BL	511			.9
399	349	*Kerrville, Texas	TT	508	604	—15.9	.8
400	361	*Fort Stockton, Texas	TT	506	476	6.3	.8
401	362	*La Grande, Ore.	WC	500	466	7.2	.8
402		*Imperial, Nebr. (1)	FL	479			.4
403		*Spearfish, S. D. (1)	NO	461			.7
404	358	*Pecos, Texas	TT	452	509	—11.2	.8
405		*Hot Springs, S. D. (1)	FL	406			.5
406		*Omak, Wash. (1)	WC	405			2.1
407	375	*Clifton, Ariz.	FL	396	276	43.4	.6
408	369	*Morehead City, N. C. (3) (4)	PI	373	353	5.6	4.0
409	316	Waco, Texas (2)	TT	366	1,223		1.3
410	365	*Sherman, Texas (4)	CN	365	417	—12.5	.6
411	366	*Provo, Utah	BL	344	404	—14.9	.6
412	363	*Ardmore, Okla.	CN	303	428	—29.3	.5
413		*Newport, Ore. (1) (4)	WC	298			1.2
414		*Kanab, Utah (1)	BL	295			.7
415		*Lakeview, Ore. (1)	WC	292			1.5
416		*Bellingham, Wash. (1)	WC	283			2.4
417		Long Beach, Calif. (1)	PC	263			1.0
418		*Logan, Utah (1)	WC	256			.7
419		*Kalispell, Mont. (1)	WC	247			2.5
420		*Newcastle, Wyo. (1)	FL	244			.8
421		*Ogden, Utah (1)	WC	239			.6
422		*Lewiston, Mont. (1)	FL	238			1.1
423	373	*McCall, Idaho (3)	WC	227	294	—22.8	2.7
424	323	Temple, Texas (2)	TT	207	957		.7
425		*Moab, Utah (1)	FL	202			1.4
426		*Bogalusa, Ala. (1)	SO	195			.5
427		*Glasgow, Mont. (1)	FL	182			1.8
428		*Fairmont, Minn. (1)	NO	172			2.0
429	374	*Hawthorne, Nev. (2)	BL	172	279		.6
430	292	*Dover, Del. (2)	AL	144	1,576		1.8
431		*Burns, Ore. (1)	WC	143			.8
432	388	*Lusk, Wyo. (2)	FL	139	70		.3
433		*Havre, Mont. (1)	FL	133			1.3
434		*Oceanside, Calif. (1)	BL	104			.5
435		*Cut Bank, Mont. (1)	WC	92			.8
436	371	*Helena, Ark. (2) (4)	TT	92	319		.4
437	390	*Douglas, Wyo. (2)	FL	60	26		.1
438	356	*Cumberland, Md. (2)	AL	33	529		2.5
439	359	*Easton, Md. (2)	AL	32	503		.8
440	364	*Lock Haven, Pa. (2)	AL	14	424		.4

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BROWARD COUNTY INTERNATIONAL AIRPORT
FORT LAUDERDALE, FLORIDA, U.S.A.
CABLE ADDRESS: SUNAIR

Known and trusted around the world

NEWER PLANES

(Continued from page 53)

hours, utilization averaging 5.7 hrs. per day. Of 12 airlines operating F-47's, 5 are local service carriers. Their utilization averaged 6.8 hrs. daily, Bonanza and West Coast averaging 8.4 and 7.6 hrs. daily during April, 1960.

Direct F-27 operating costs for West Coast, Piedmont, Bonanza and Pacific during 1959, as reported by the carriers on CAB Form 41, ranged as follows: Per total hour flown, $172.82 to $197.13; per scheduled revenue mile flown, 89.3 cents to $1.08, and per total mile flown, 78.1 cents to $1.04. Pacific reported the lowest hourly direct operating costs, itemized as follows: Crew $33.24, fuel and oil $34.22, insurance $11.41, other flying operating $2.55, airframe maintenance $15.64, engine maintenance $35.38, other maintenance $7.96 and depreciation $27.99 for a total of $172.82 direct operating costs per hour.

Airmen's Calendar

June 14-16—35th Meeting, Aviation Distributors and Manufacturers Association, Queen Elizabeth Hotel, Montreal.

June 18—Flight Safety Clinic, conducted by Texas Aeronautics Commission For All Pilots, Houston.

June 19—Free Breakfast Fly-in and Aircraft Display, Springfield, Minn.

June 21—General Aviation Flight Safety Seminar, conducted by N. Y. State Dept. of Commerce For All Pilots, Hotel Arlington, Binghamton, N. Y.

June 26—Dawn Patrol Breakfast, Haines Airport, Three Rivers, Mich.

June 26—Municipal Airport Dedication with Fly-in Barbecue and Air Show, Knox City, Tex.

July 10—Aviation Days Celebration and Air Show with Blue Angels, Mason City, Iowa.

July 14-16—Directors Meeting, National Association of State Aviation Officials, Atlantic City, N. J.

Aug. 2-11—27th Annual U. S. National Soaring Championships, Ector County Airport, Odessa, Tex.

Aug. 28-Sept. 5—1960 National Air Rally, sponsored by National Aeronautic Association, Municipal Airport, Orange, Mass.

Sept. 4-5—8th Annual Oakland Air Fair, International Airport, Oakland, Calif.

Sept. 4-5—Closed-Course Airplane Races, Lake Front Airport, Cleveland, Ohio.

Sept. 8-9—National OX-5 Convention, Tower Hotel, Dallas.

Sept. 8-9—Engine and Operations Symposium, Airwork Corp., Millville, N. J.

Sept. 10-12—Youth Air Fair, Wirt Field, Newton, Kansas.

Sept. 18—Pacific Festival Air Show, International Airport, San Francisco.

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You're flying merrily along, navigating with the aeronautical information on a "PILOTAGE" type chart. You get a flash that a line of thunderstorms is now active across your route. You revise your course and decide to land at Big City. Then you wonder... what is the current frequency of Big City OMNI? Is it a high density traffic zone? Should you contact approach control before you get too close? Can you identify the airport—the assigned runway? Does Big City have Ground Control and if so on which frequency? Perhaps the smaller airport nearer town would be better. But what refueling and facilities does it offer? And how about UNICOM?

Here's What Puts The "Aid" In J-AID!

The answers to questions such as these and many others are now available in one handy compact (5½ x 8½) volume—the new J-AID (Jeppesen-Airport and Information Directory.) The J-AID has been tailored specifically to give the VFR pilot the current information he needs to handle more confidently and safely the aviation picture of crowded airways, high-density areas and constantly changing aviation facilities and regulations.

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Glancing through the J-AID volume you will find an enormous amount of information for VFR flying. J-AID provides "DIRECTORY" information on all U. S. "public use" airports. It contains over 1600 detailed diagrams of the more frequently used airports. J-AID gives you all aviation radio frequencies. J-AID also shows you how to read weather maps and teletype sequences, and gives current rules and procedures for Air Traffic Control, and Civil Air Regs.

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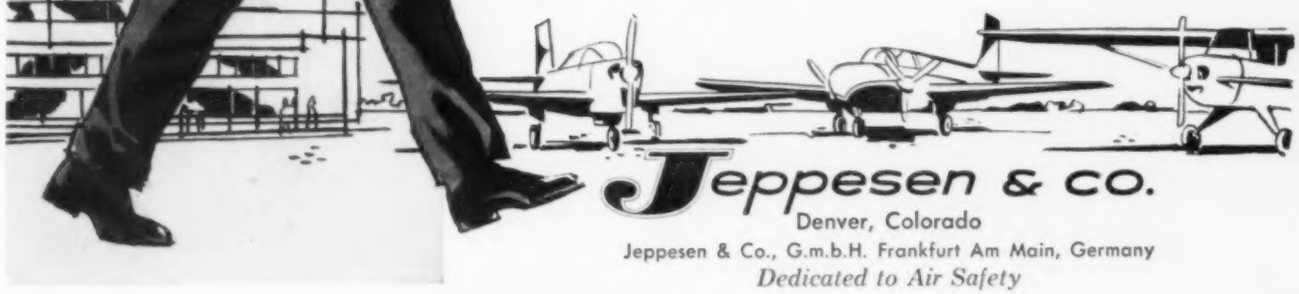

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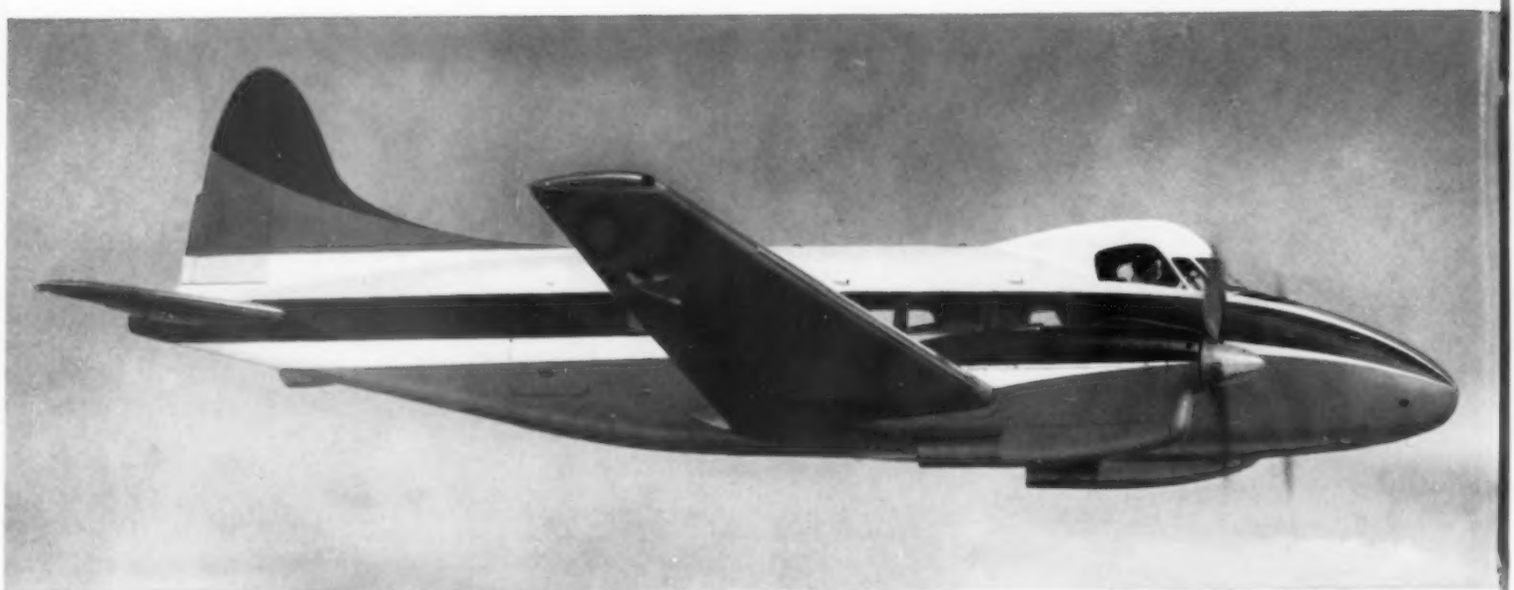
de Havilland present
a new elegance in executive aircraft

The DOVE *Custom 800*



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with fuel injection and exhaust thrust augmentors

The beautifully appointed Custom 800 sets new standards of comfort for the executive. The largest and quietest cabin in its class has an interior styled and executed to your requirements by internationally famous Horton-Horton of Fort Worth, Texas.

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OPERATION GOLDEN RULE FOR OWNERS OF HIGH-PERFORMANCE CESSNA MODEL 210 has been launched by the factory with 12 service specialists touring nationwide distributors in 9 factory airplanes. At no cost to owners of 210's, they incorporate improvements already perfected by the factory in new production and study needs for other improvements. Program is designed to provide continuous quality follow-up service to insure continued acceptance of the Model 210.

—(Cessna Photo.)

AIR REPORT

(Continued from page 7)

REVERSING EARNINGS LOSS TREND OF AIRLINES IN AMERICA, British European Airways reports a record profit of $5.6 million during 1959. Over 60% of its 3,200,000 passengers were carried in the Vickers Viscount.

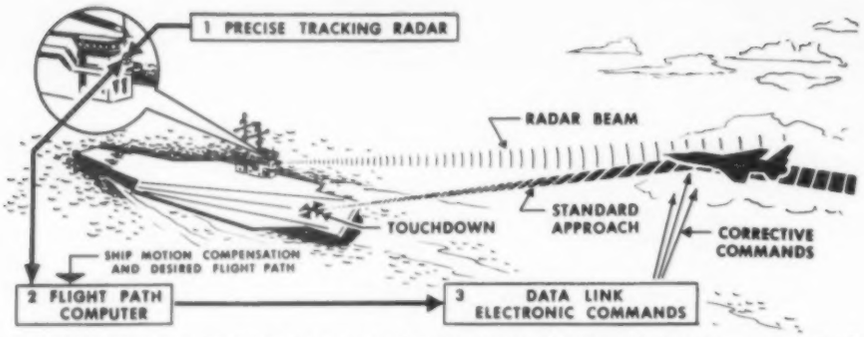
T. J. HARRIS has been promoted to be vice president and general manager of Aero Design & Engineering Co., manufacturers of the Aero Commander. George T. Pew, president, said Harris will have full responsibility for the management operation of the company.

REVIEW OF FAA ADMINISTRATOR DECISIONS affecting certificates of airmen and aircraft is provided by two proposed amendments to the Federal Aviation Act introduced recently by Senator Engle of California. They would give the Civil Aeronautics Board certain review authority over FAA decisions affecting revocation of certificates. Engle charged he has found "that the rights of an individual pilot receive less consideration under the administration of the Federal Aviation Act than would be accorded the most common criminal in a court of law." He said too much power had been placed in the hands of the FAA Administrator, without adequate appeal provisions.

ORDERS FOR LAKE AMPHIBIANS cover production for the next 10 months, according to a report by John F. Strayer, president of Lake Aircraft Corp., Sanford, Maine, only manufacturer of a single-engine amphibian in the U. S. They include orders for 14 from nine foreign countries.

OFFICIAL RECOGNITION OF MAX CONRAD'S DISTANCE FLIGHT last month established a new world distance mark of 6,966.75 statute miles for lightplanes weighing between 2,204 lbs. and 3,858 lbs. Con-

VTOL LOCAL SERVICE TRANSPORT designed by Curtiss-Wright Corp. is depicted by this model shown by Roy T. Hurley. It would carry 30 to 50 passengers. Four engines drive "radial lift" propellers which tilt for vertical flight. Curtiss-Wright has been flight-testing a lightplane using two of the propellers for vertical take-off and landing as well as high-speed forward flight.



AUTOMATIC SHIPBOARD LANDINGS IN HEAVY FOG OR RAIN are promised by a $4.3 million Navy order to Bell Aircraft for four complete AN/SPN-10 electronic landing systems. Sketch shows how radar and computers compensate for ship's motion and aircraft's glideslope in feeding commands to airborne autopilot. During evaluation and development, the Bell automatic landing system landed a Navy jet fighter over 100 times aboard the USS Antietam at sea and has landed other commercial, private and military aircraft thousands of times at airports.

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Associated Radio Service Company specializes only in electronic installations of all types for private, executive and airline aircraft.

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rad's record, made last Nov. 26 in a 180-hp. Piper Comanche flown non-stop from Casablanca to El Paso, Texas, exceeded by some 2,000 miles the old record established in 1949 by the late Bill Odom in a Beech Bonanza from Honolulu to Teterboro, N. J. Conrad had previously set a new world's record for lightplanes weighing between 3,858 and 6,614 lbs. when he flew the same Piper Comanche, equipped with a 250-hp. Lycoming engine, from Casablanca non-stop to Los Angeles.

AIRLINE SAFETY IS JEOPARDIZED BY INADEQUATE FINANCING, according to Harry F. Guggenheim, aviation authority and chairman of the Cornell-Guggenheim Aviation Safety Center. He said that unless Congress takes immediate action to relieve the financial plight of the airlines, a major accident involving new jet airliners may cause an enraged public to demand action. Guggenheim said there is a connection between the financial plight of the airlines and the rise in airline accidents and if Congress fails to act it should then "deliberately slow down U. S. progress in the air in the interest of safety of the public." He pointed to the fact that one major airline is being sued by its creditors while net operating income has stood still for twelve other domestic trunk airlines. "Despite enormous growth in passenger traffic, the airlines as a whole are simply not earning enough money to permit them to obtain the capital they must invest to maintain service, get sufficient equipment and utilize all required safety devices and methods," Guggenheim said. "The same may be said for our airports and supporting services."

AERIAL TRAFFIC PATROL between Philadelphia and Atlantic Shore resorts will be conducted on weekends this summer as a public service by Radio Station WIP and Delaware Aviation of North Philadelphia Airport. Bun DeWeese of Delaware Aviation furnishes Piper Tri-Pacer and Comanche aircraft for the aerial patrol. A promotional exhibit (below) shows the Tri-Pacer.

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LOCKHEED ELECTRA MODIFICATIONS are being perfected for strengthening the new propjet airliner in a program which will cost $25 million or more. The modifications are designed to eliminate the cause of mid-air structural failure in two airline accidents. Lockheed said research and exhaustive structural tests show the accidents resulted from "dynamic coupling at high speed of oscillatory movements of the outboard power package-nacelle and the wing." The firm said both Electras involved in the accidents had apparently suffered "some element of damage" in the engine nacelle area, adding that this damage alone could not cause destruction. But the combination of damage plus external force, such as turbulence at high speed, triggered the oscillations of flutter and this caused rapid structural failure. Modifications will eliminate the hazard of "dynamic coupling at high speeds," Lockheed said.

TENTH ANNUAL SPRING CONFERENCE of the California Aviation Education Association elected the following officers: President, Ralph Bent, Inglewood; vice president, Phyllis Ross, San Pablo; secretary, Marguerite Swafford, West Covina, and treasurer, Al Machado, Salinas.

when you're caught in weather

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Aircraft Instruments and Systems Division

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H. S. (CHRIS)CHRISTENSEN has joined the product management staff of the Avionics Group at Bendix Radio Division in Baltimore, according to C. I. Rice, manager of avionic products. Christensen was formerly with Aircraft Radio Corp. as commercial sales manager and is widely known. For Bendix, he will be responsible for coordinating and planning the firm's business aircraft radio line. Bendix has long-range plans for expanding its line to include equipment specifically designed for intermediate twin-engine aircraft.

NEW NAVIGATION SYSTEM being developed by IBM projects a highly-accurate circular map of an area 400 miles in diameter on a 7.5-in. screen, an airborne computer performing all necessary calculations to position the map on the screen and pinpoint the pilot's position so that he can literally see on the map what city, town or exact point he is flying over.

JAMES W. CLYNE has been named to the newly-created post of manager of sales and service of Sikorsky Aircraft Division of United Aircraft Corp. at Bridgeport. Sikorsky is introducing a number of new turbine-powered helicopters and expanding its sales activities. Clyne has been director of international commercial sales for Douglas Aircraft since 1952.

AUTOMATIC GROUND GUIDANCE OF ALL AIRCRAFT, commercial and military, is inevitable, according to I. Nevin Palley, president of International Telephone and Telegraph's Federal and Laboratories divisions. He reported a recent TACAN computer-directed coast-to-coast flight by an Air Force fighter demonstrated TACAN's accuracy in automatic guidance. Except for take-off and landing, the pilot's chief duty was simply monitoring his instrument panel to confirm that he was flying the right course at the right speed. New airborne equipment processed signals from ground stations along the route and fed them through an automatic electronic guidance system developed by Hughes Aircraft.

EFFECTIVE JUNE 15, FAA will require all applicants for a student or private pilot (class 3) medical certificate to take their medical examina-

The CLOCK that never strikes 5

The clock on our wall is quite unique — it never strikes **five** — therefore, we never know when to quit working. At this traditional closing time for most businesses you will always find things buzzing as normal around SOUTHWEST AIRCRAFT, Inc. For years we have been a slave to this mechanical Simon Legree, keeping our business and hangar doors open 24 hours a day, seven days a week.

But, to us, our work is a toil of love and we are proud to provide aircraft owners and operators with the finest facilities in the nation. Also, our experienced staff is prepared to give immediate attention to any maintenance requirement in our huge, well lighted hangars. Transient Aircraft receive prompt service on the ramp of SOUTHWEST AIRCRAFT, Inc., at Meacham Field in Fort Worth.

- Overnight Hangar Storage
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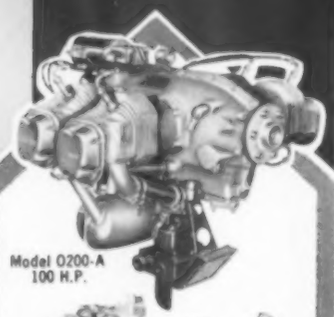
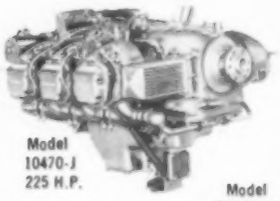


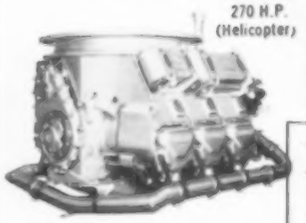
Model O200-A
100 H.P.

Model GO300C
175 H.P.



Model
IO470-J
225 H.P.

Model
FSO526-A
270 H.P.
(Helicopter)



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20 MODELS 65 TO 340 HORSEPOWER

MODEL	HP	RPM	CYL.	WT.	OCTANE
A65	65	2300	4	173	80/87
C90	95	2625	4	207	80/87
O200-A	100	2750	4	190	80/87
O300-A B & C	145	2700	6	277	80/87
GO300-C	175	3200	6	312	80/87
E225	225	2650	6	363	80/87
O470-K & L	230	2600	6	404	80/87
O470-M	240	2600	6	409	91/96
O470-G	240	2600	6	432	91/96
O470-H*	240	2600	6	472	91/96
IO470-C	250	2600	6	432	91/96
IO470-D	260	2625	6	426	100/115
IO470-F	260	2625	6	426	100/130
IO470-J	225	2600	6	402	80/87
IO470-K	225	2600	6	391	100/130
FSO526-A**	270	3200	6	575	91/96
GSO526-A	340	3100	6	549	91/96

*Pusher Type engine with extended propeller shaft
**Helicopter engine

Continental Motors Corporation
AIRCRAFT ENGINE DIVISION
MUSKEGON • MICHIGAN

tions only from designated aviation medical examiners. Holders of class 3 medical certificates are required to be examined every two years.

DWAYNE K. JOSE has been named commercial sales manager of Bell Helicopter Corp., Ft. Worth, in Bell's expansion of commercial sales activities. The firm has built and sold more commercial copters than all other manufacturers combined and will soon begin marketing a new commercial turbocopter. Jose was formerly eastern sales manager for Cessna Aircraft Company.

NEW LOW-COST SPERRY SP-3 AUTOPILOT FOR BUSINESS PLANES has been FAA certificated as having met standards for airline equipment under TSO C-9B. Sperry is now completing marketing arrangements for the new system, which costs from $1,818 to $4,440, depending on the degree of automation desired.

FAA ADMINISTRATOR E. R. QUESADA has been presented the 1959 Monsanto Aviation Safety Award "for having made the year's most significant and lasting contribution to aircraft operating safety." His selection was based on his "vigorous implementation of the Federal Aviation Act of 1958" and other activities in behalf of air safety. Presentation was made by the Aviation Writers Association at its annual meeting in Los Angeles.

LONG-RANGE NAVIGATION by Edo Loran is now possible in private and corporate aircraft for over-water travel. Pictured below is Edo Corporation's own Cessna 310 with direct-reading unit and scope between front seats. Receiver fits three-quarter-ATR rack. Installed weight is 31 lbs.

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Champ's Aviation, Inc.
Municipal Airport
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Clinton Aviation Company
Stapleton Airfield
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Coastal Aviation, Inc.
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Tampa International Airport
Tampa 3, Florida

Cruse Aviation, Inc.
International Airport
Houston, Texas

Dal-Tex Aviation, Inc.
Addison Airport
Addison, Texas (Dallas)

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Macon, Ga.

Midwestern Aero Service, Inc.
Southern Illinois Airport
Carbondale, Illinois

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Skyways
Hastings and Grand Island
In Central Nebraska

Southwestern Skyways, Inc.
Municipal Airport
Santa Fe, New Mexico
and Ogden, Utah

Kenneth Starnes Aviation Service
Adams Field
Little Rock, Arkansas

Sunny South Aircraft Service, Inc.
Broward International Airport
Fort Lauderdale, Florida

Walston Aviation, Inc.
Civic Memorial Airport
East Alton, Illinois

Wings, Inc.
Wings Field
Philadelphia 18, Pa.

Yingling Aircraft, Inc.
Municipal Airport
Wichita, Kansas

New Business In The Hangar

REMMERT-WERNER, Lambert Field, St. Louis, had Olin-Mathieson's DC-3 in for 8,000-hr. inspection, stripping and repaint, replacement of R-2000 engines with R-1830-94 engines, new instrument panel, aircraft and radio rewiring, new interior and installation of aileron gap strips. Neil Fulton is pilot. . . . Short stacks were installed on the Cummins Engine DC-3. . . . One of Fort Monmouth's C-47's was in for double engine change, installation of Goodyear brakes, fire-resistant engine lines, dual hydraulic system, repainting, recovering of control surfaces, instrument panel changes, one-piece birdproof windshields, belly camera well, installation of ARC-210 transceiver, ARN-30 and other work. . . . Ford Slikar's Scripps-Howard B-23 had a Collins 17L7 transmitter and Bendix Omni Mag installed. . . . Walter Westerfield's General Insurors Aero Commander was in for an engine change.

EXECUTIVE AIRCRAFT SERVICE, Red Bird Airport, Dallas, delivered to Tecon Corp., Charles W. Bolton, pilot, a Convair 240 conversion including new 19-passenger cabin interior, double engine change, weather radar installation, Sperry SP-20 autopilot installation, auxiliary power unit, stainless steel nacelle overlay and other work. The Convair was acquired from Fred Ayer Associates. . . . Russell Purchase brought in a Dow Chemical DC-3 for new paint and periodic inspection. . . . Col. E. W. Estelle's Esso Tankers Convair 340 was in for complete hydraulic system overhaul. . . . Red Irwin brought in his Gulf Oil Convair 440 for airframe repairs. . . . Miscellaneous work was performed on Ed Armstrong's S. W. Richardson Estate DC-3 and the Allan Corporation's DC-3.

MINNESOTA AIRMOTIVE, Wold Chamberlain Field, Minneapolis, has named Orion L. Hansen assistant to the office manager, according to John M. Stuber, vice president and general manager. Hansen was formerly with F. H. Peavey & Co., of which Minnesota Airmotive is a division.

EAST COAST AVIATION CORP., Bedford Airport, Lexington, Mass., performed carburetion change on John Lincoln's Laboratory for Electronics Convair. . . . Also in for work were Clyde Hudnall's FAA DC-3, Dick Fournier's Pioneer Plastics Aero Commander and Jack Redmond's Lund Products Cessna 310.

MOHAWK AIRLINES, Oneida County Airport, Utica, N. Y., has started performing outside contract maintenance for others. In the Mohawk hangar last month was Cummins Engine's Convair 440 with Pinky Rowe and Wade Porter for a new left front window. . . . Left engine change and 100-hr. inspection were performed on Burlington Industries' Convair 240 for Shelby Maxwell, Art Ashley and Jim Guess. . . . The Great Lakes Carbon Convair 340 received sliding windows for the cockpit. . . . A Sears Roebuck Convair 340 was in for inspection, as was a Texas Instruments Convair 240. . . . Harvey Hopp and Ken Johnson brought in the Collins Radio Convair 240 for a compressor. . . . Flap repairs were performed for Mel Chapman's Consolidated Gas Lodestar. . . . Stub Forbes and Walt Miller brought in Scott Paper's DC-3 for wing removal and inspection.

PLANESERVICE, Division of Norman Larson Co., Van Nuys Airport, installed new fuel-injected engine and kit in the H35 Bonanza of A. L. Rodriguez of Las Cruces, Mexico and overhauled its L2 autopilot. . . . A Morris-Knudsen Travel Air was in for Collins communication system, omni, ADF and 100-watt 18 S-4 HF transceiver before being ferried by Skyways Ferrying Service to Pakistan for operation there. . . . Morris-Knudsen pilots, Del Asbury and Loyd Chenowith, also brought in their Beech 18 for overhaul of props, carburetor sys-

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  Teterboro, New Jersey
- Logan International Airport
  East Boston, Massachusetts
- International Airport
  Philadelphia, Pennsylvania
- New Castle County Airport
  Wilmington, Delaware

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Downtown Municipal Airport, Shreveport, La.

CUTTER-CARR FLYING SERVICE, INC.
West Mesa Airport, Albuquerque, New Mexico

GRAY AIRCRAFT SVC. CO., INC.
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Love Field, Dallas, Texas

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Greensboro-High Point Airport
Greensboro, North Carolina

ELLIOTT FLYING SERVICE
- Municipal Airport, Des Moines, Iowa
- Municipal Airport, Davenport, Iowa

THE NORMAN LARSON CO.
PLANESERVICE, INC. (Service Division)
Van Nuys Airport, Van Nuys, Calif.
(Los Angeles Area)

PIEDMONT AVIATION, INC.
Smith Reynolds Airport
Winston-Salem, North Carolina

ROSCOE TURNER AERONAUTICAL CORP.
Municipal Airport, Indianapolis, Ind.

TEXAS AVIATION CORPORATION
G. K. Roberts, Pounds Field
Tyler, Texas

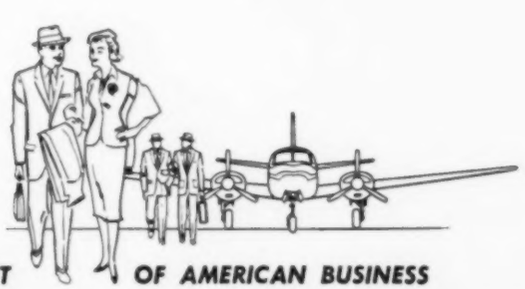
TOPEKA AIRCRAFT SALES & SERVICE
Municipal Airport, Topeka, Kansas

TRADEWIND AIRPORT CORP.
Tradewind Airport, Amarillo, Texas

TULSAIR DISTRIBUTORS, INC.
Hangar 8, Municipal Airport, Tulsa, Oklahoma

UNITED AIRPLANE SALES, INC.
New Municipal Airport
Wichita, Kansas

Beechcraft



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tems and inspection — this 18 is passing its 8,000-hr. mark and has averaged 80% service availability. . . . Diedrich Bros. of Oxnard had a Tactair T-3 autopilot installed in their new Skylane. . . . Fred Alexander brought in his C & H Supply Super 18 for overhaul of fuel tanks and periodic inspection. . . . J. E. Smith's H35 Bonanza from Bullhead, Arizona, was in for installation of fuel injection engine and kit.

AIRESEARCH AVIATION SERVICE, Los Angeles International Airport, delivered Will Smith's Martin Company Grumman Gulfstream following installation of executive interior, Bendix RDR-1D radar, Sperry SP-20 autopilot, communication and navigation electronic equipment and exterior white paint job with black trim. . . . A third Fairchild F-27 belonging to an East Coast firm was delivered with customized executive interior styled to match its other two F-27's. . . . Frank Thera brought in Minnesota Mining and Manufacturing's Convair 340 for executive interior, Sperry A-12 autopilot, RCA AVQ-10 radar, stainless steel overlay on nacelles in compliance with Note 59-2-1, special 3M sound dampening treatment, auxiliary power unit, radio and exterior painting. . . . William Horan's Great Lakes Carbon Convair 340 was in for miscellaneous radio repair work.

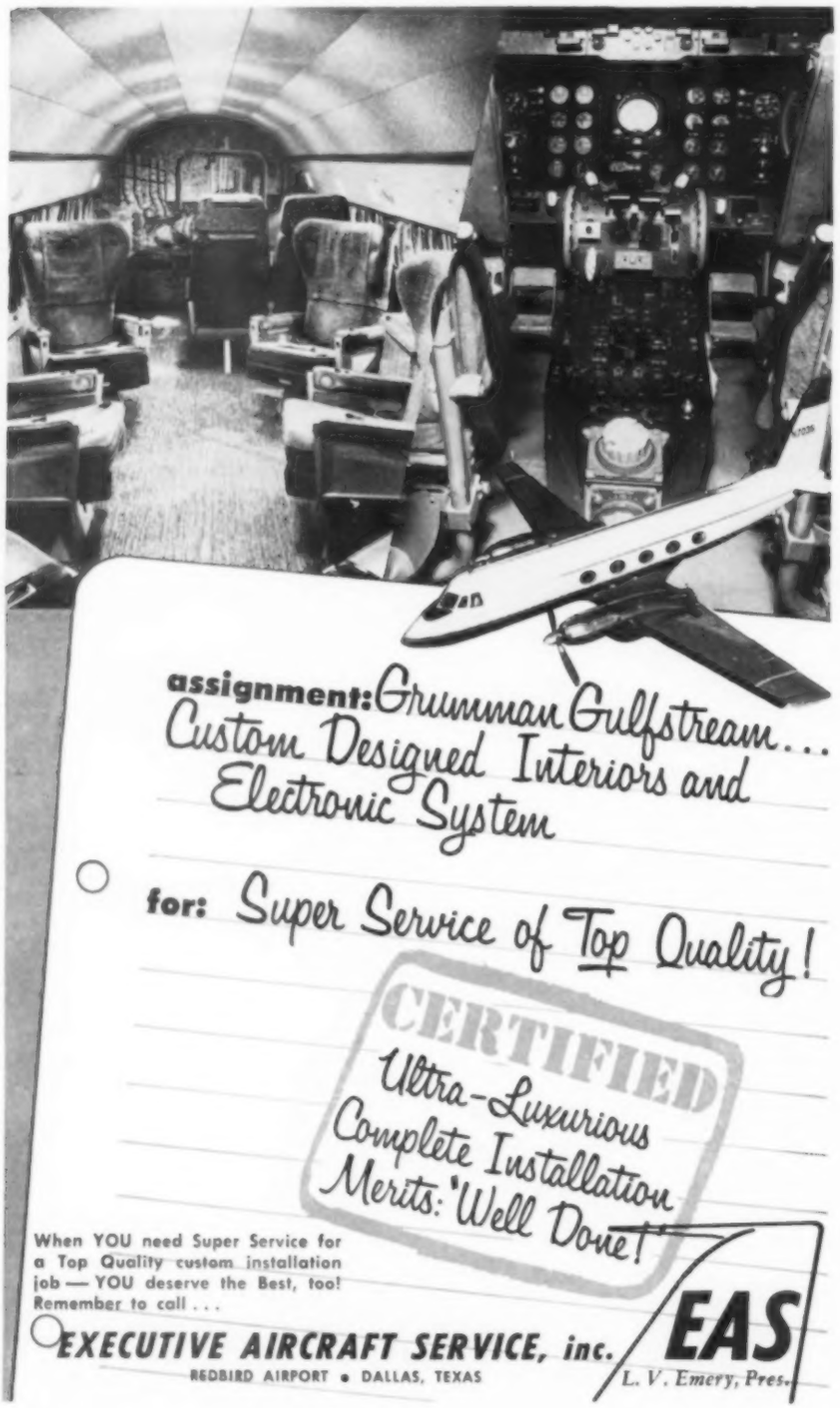
DOT AIRTRONICS, Zahn's Airport, Lindenhurst, N. Y., installed ADF and VHF systems in Fernando Moreno's Smith-Kirkpatrick Grumman prior to trip to South America. . . . Westinghouse Air Arm brought in their new Cessna 310D for dual Collins nav-com system and Motorola L2 autopilot. . . . Ascoe Equipment's new 310D received maximum integrated nav-com system with Dot's integrator featuring RMI GE compass system with automatic omni-autopilot feature. . . . Ed Asplundh, the tree expert, purchased complete Dot integrated system for his 310C. . . . New York Penn's Beech 18 was in for retrofit with new ARC crystal-controlled omni and Collins lightweight nav-com system.

FOWLER AERONAUTICAL SERVICE, Burbank, has incorporated new FAA executive pilot training requirements in their Executive and Airline Pilot Training Service. All companies holding certificates under CAR Parts 45, 42 and 40 are subject to annual investigation by FAA and must maintain complete pilot training records. Fowler's new service provides all the new requirements.

EXECUTIVE AVIATION, Peachtree-DeKalb Airport, Atlanta, has added a 3-minute tape-recorded summary of regional weather conditions to its services for airmen, its own meteorologists preparing the tape for use with the Weather Bureau teletype and weather maps.

SOUTHWEST AIRMOTIVE, Love Field, Dallas, has contracted to perform overhaul of Pratt & Whitney JT-4 (J75) jet engines and accessories for National Airlines of Miami, which is operating Douglas DC-8's. . . . The U. S. Weather Bureau's elaborately-instrumented DC-6 flying weather laboratory visited the Southwest ramp, with its $750,000 worth of equipment being explained by Carl Reber, operations manager for Bureau's hurricane research project. It is based at Oklahoma City. . . . In for miscellaneous work were Texaco and Kodak Grumman Gulfstreams, Jim Boyd's Shamrock Oil and Gas Lodestar, Steve Beville's International Minerals Beech, and Dalrymple Equipment's Beech.

HOWARD AERO SERVICE, San Antonio, had in the hangar John Lyons' Hondo Oil & Gas Lodestar for Howard power packs, spinners, engine change and prop overhaul. . . . George Moon brought in Union Texas Natural Gas Company's Lodestar for prop vibration panel and inspection. . . . Radio and engine repairs were performed on Bob Hamilton's National Steel Super Ventura. . . . Bob Renneker accepted delivery of Nationwide Mutual Insurance's Howard 500. . . . In for miscellaneous work were Northern Natural Gas' Howard 500,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RED AIRCRAFT SERVICE, INC.
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Fort Lauderdale, Florida

ROSS AVIATION, INC.
Riverside Airport
HIckory 6-6654
Tulsa, Oklahoma

ST. LOUIS FLYING SERVICE
Lambert Muncipal Airport
Box 6067, *Lambert Field Station*
PErshing 1-0450 & *PErshing* 1-1770
St. Louis, Missouri

Western Pipe Line's Lodestar, Frontier Chemical's Beech 18, Hudson Bay Gas & Oil Lodestar, Pat Welder's Learstar and D. P. Stephenson's Twin Beech.

PACAERO ENGINEERING, Santa Monica, has installed the first Radan 500 and track navigation TNC-50 self-contained Doppler radar systems in executive aircraft. The installations were in corporate-owned Grumman Gulfstreams. Manufactured by General Precision, Inc., the Radan navigation system is coupled to the flight director and the autopilot to provide both a pictorial display and automatic steering along a desired track.

MID CONTINENT AIRMOTIVE CORP. will establish an aircraft service facility for private and business aircraft at the new Jefferson County Airport now nearing completion 15 miles northwest of Denver with a 6,000-ft. runway. H. A. Smith, president of Mid Continent Airmotive, a wholly-owned subsidiary of Pacific Airmotive of Burbank, said his new facility will include 17 T-hangars plus two new hangars with a combined floor area of 33,600 sq. ft. The base will provide complete aircraft line maintenance with overhaul shops and inventories of leading products, parts and supplies. The new Mid Continent operation will be managed by James M. Staker, with Robert D. McKeirnan as service manager. The new airport will be completed next fall and is expected to become the headquarters for busines aircraft operators in the Denver area.

FREDERICK B. AYER & ASSOCIATES, New York City, has interesting performance figures from a month-long tour of its new Convair 240 demonstrator equipped with high-performance CB-16/17-type engines. Cruising speed has averaged 270 mph., pulling 1,200 hp. from each of the 2,400-hp. engines at altitudes of 17,000 ft. and above. It is fitted with supplementary fuel tanks giving it a range in excess of 1,900 miles with 45-min. reserve. Gross take-off weight is 42,500 lbs. AiResearch Aviation Service made the modifications.

NATIONAL AERONAUTICAL SERVICES ASSOCIATION is a new organization into which the Aeronautical Training Society (ATS) and The Aircraft Service Association (TASA) have merged. NASA's primary function will be to encourage the armed forces and other government agencies to use civilian contractors for aircraft overhaul and maintenance, training and other aviation services which can be accomplished more economically and efficiently under contract. With headquarters in Washington, NASA will have panel groups made up of firms in the following fields: training and related services, maintenance, modification, overhaul and related services, specialized contract services, fixed-base operations, research and development and supply distribution (parts sales). Members of ATS include Anderson Air Activities, Beiser Aviation, Carter Aviation, Dixie Air, Embry-Riddle, Fairways Corp., Hawthorne School, Hylan Flying Services, Jim Duncan's School, Lockheed Aircraft, Maytag Aircraft, Northwestern Aeronautical, Page Aircraft, Page Airways, Ross Aviation, Southern Airways, Spartan and Wiggins Airways. Members of TASA include Aerodex, Air Mod Division (Cook Electric), Dallas Airmotive, Fairchild Aircraft, International Flight Enterprises, Lockheed Aircraft Service, Southwest Airmotive and Temco Aircraft. Washington offices of NASA are at 1115 Seventh St., NW.

AIRCRAFT ELECTRONICS ASSOCIATION, organization of aircraft radio shops throughout the nation, held its third annual meeting recently in San Francisco with 95 members, manufacturers and guests. Opposition to preferential discounts to airframe manufacturers from radio suppliers was the most important topic. In other activities, AEA declined an invitation

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to affiliate at this time with the National Aviation Trades Association. United Air Lines' maintenance base and electronics department were visited. Reviewed in meetings were FAA requirements for aircraft radio shops, new Hewlett-Packard electronic test equipment, the ATC transponder program, including system requirements, and the use and care of semi-conductors and transistors. D. R. Anderson of Detroit was elected president to succeed C. O. Peacock of Denver. Other new officers are J. F. Haussler, Jr., Qualitron, Burbank, vice president; L. R. Hampton, Atlantic Aviation Service, Philadelphia, secretary, and C. W. White, West Texas Flying Service, Midland-Odessa, treasurer. New two-year directors are T. F. Aubry, Ohio Aviation, Vandalia; J. Prewitt, Dallas Aero Service; E. E. Baker, Jr., Robbins Aviation, Pontiac, Mich., and H. P. Miller, San Jose Avionics, San Jose, Calif. Representatives from Cessna and Aero Design and 11 aircraft electronics manufacturers attended. Next annual meeting will be in St. Louis at a date to be selected.

ROBBINS AVIATION, Municipal Airport, Pontiac, Mich., has named Gene Baker as vice president and

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Bismark, N. D.	Enterprise	3000	Newark, N. J.	WX	8030
Boise, Idaho	Enterprise	300	New Orleans, La.	WX	3000
Bronx, N. Y.	Enterprise	6789	Norfolk, Va.	Enterprise	626
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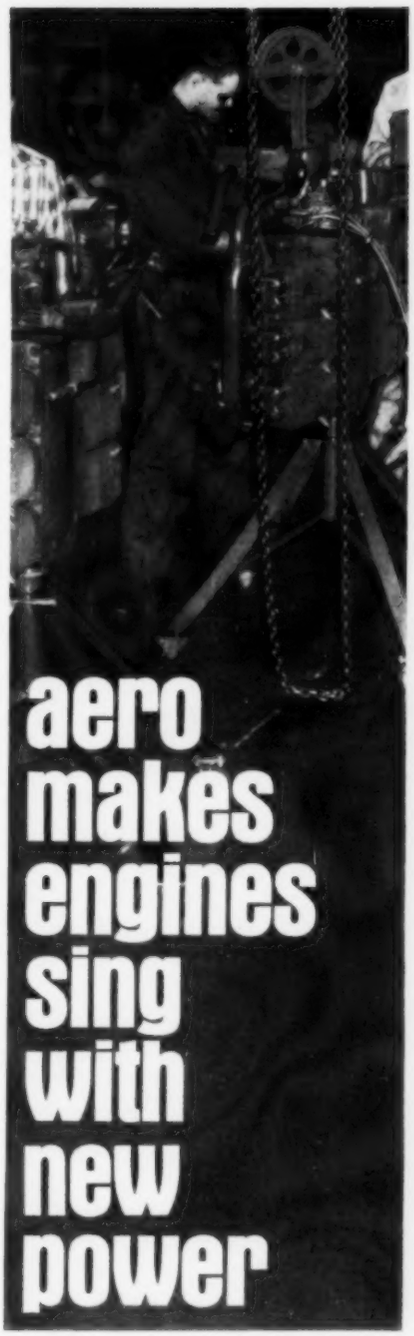
Buffalo, N. Y.	Enterprise	6789	Oklahoma City, Okla.	Enterprise	5300
Casper, Wyo.	Enterprise	300	Omaha, Neb.	Enterprise	300
Cincinnati, O.	Enterprise	1-6789	Philadelphia, Pa.	Enterprise	6789
Cheyenne, Wyo.	Enterprise	300	Phoenix, Ariz.	Enterprise	300
Chicago, Ill.	Enterprise	8030	Pittsburgh, Pa.	Zenith	0030
Cleveland, O.	Enterprise	6789	Pueblo, Colo.	Enterprise	300
Colo. Springs, Colo.	Enterprise	300	Queens, N. Y.	Enterprise	6789
Dallas, Tex.	Enterprise	302	Reno, Nev.	Enterprise	1-3000
Des Moines, Ia.	Enterprise	300	Salt Lake City, Utah	Zenith	300
Detroit, Mich.	Enterprise	7030	San Antonio, Tex.	Enterprise	302
El Paso, Tex.	Enterprise	300	San Francisco, Cal.	Enterprise	1-3000
Ft. Collins, Colo.	Enterprise	300	Santa Fe, N. M.	Enterprise	300
Ft. Worth, Tex.	Enterprise	302	Scottsbluff, Neb.	Enterprise	300
Farmington, N. M.	Enterprise	300	Seattle, Wash.	Zenith	3000
Grand Junction Colo.	Enterprise	300	Staten Island, N. Y.	Enterprise	6789
Helena, Mont.	Enterprise	300	St. Louis, Mo.	Enterprise	3000
Houston, Tex.	Enterprise	302	St. Paul, Minn.	Zenith	6789
Indianapolis, Ind.	Enterprise	8030	Spokane, Wash.	Zenith	3000
Kansas City, Mo.	Enterprise	300	Tacoma, Wash.	Zenith	3000
Little Rock, Ark.	Enterprise	300	Toledo, Ohio	Enterprise	3000
Los Angeles, Cal.	Zenith	9-6789	Topeka, Kan.	Enterprise	300
Louisville, Ky.	WX	3000	Tuscon, Ariz.	Enterprise	300
Manhattan, N. Y.	Enterprise	6789	Tulsa, Okla.	Enterprise	4300
Memphis, Tenn.	WX	3000	Washington, D. C.	Enterprise	1-0300
Miami, Fla.	WX	6789	Wichita, Kan.	Enterprise	300



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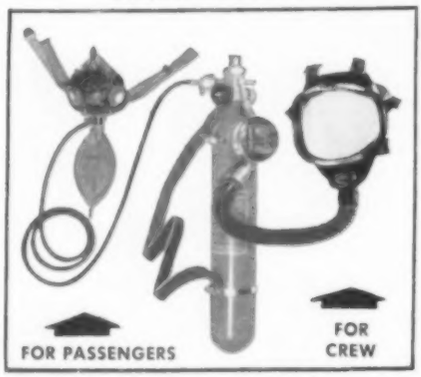

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NEW L. B. SMITH PRESSURIZED TEMPO II is pictured (above) in Miami where flight test evaluation was performed prior to FAA certification. FAA conformity inspection for the 10-passenger, 350-mph. Tempo II was completed late in April.
—(L. B. Smith Photo by Wayne Entriken.)

general manager, according to J. M. Robbins, president.

NEW LIGHTWEIGHT DME DEVICE FOR LIGHTPLANES has been developed and demonstrated by Bendix for officials of FAA and the Signal Corps Research and Development Laboratory. Used as an accessory to conventional air-to-ground two-way radio to determine distance between an interrogator and responder, the prototype unit weighs only 5.3 lbs. and acts as interrogator or responder. It is packaged in a short ¼ ATR case. Bendix says the final NVA-230A system will have a "SelCal" feature added to permit operation of many interrogators with a single responder. One application is to install a responder at existing VOR stations with little or no station equipment modification. Then a lightplane equipped with an interrogator would have a low-cost, lightweight range-azimuth navigation system.

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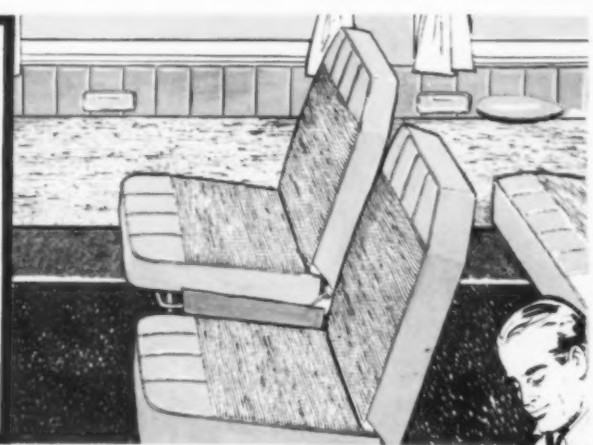

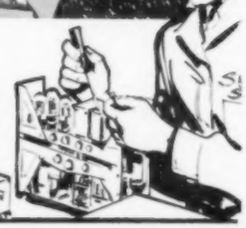

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CORPORATE-EXECUTIVE COPTERS

(Continued from page 94)

information given: Maximillian De Hindde, Dallas, and Murray Petroleum, San Angelo.

VIRGINIA: 1 Bell-47, Central Virginia Electric Cooperative, Lovingston, and Powell Valley Electric Cooperative, Johnsville, no information.

WEST VIRGINIA: 1 Bell-47, Betsy Ross Bakeries, Bluefield.

WISCONSIN: 1 Bell-47, Wisconsin National Bank, Milwaukee.

CANADA: 13 helicopters including 11 Bell-47 and 2 Hiller-12 — Aluminum Co., Vancouver, B. C., 3 Bell-47; Canadian Vickers, Ltd., Montreal, 2 Bell-47; Ecstall Mining, Vancouver, 2 Hiller-12; Federal Equipment of Canada, Toronto, Bell-47; Leavens Bros., Toronto (no information); S. McNally & Sons, Hamilton, Ont., Bell-47; Scurry Rainbow Oil, Calgary, Alberta, Bell-47; Ross Toms, Toronto, Bell-47; and Uranium Corp. of BC, Vancouver, Bell-47.

JUST AMONG OURSELVES

(Continued from page 18)

Thomas White, Air Force chief of staff, has told Congress that if we don't perfect something like the B-70, "we are forever limited to a barrier at the speed of about Mach 2.4 and I am sure that other nations will not stop their aeronautical development at any such artificial barrier as that."

One of many advantages offered by a Mach 3 aircraft is that its heat-barrier breakthrough can lead to manned aircraft with Mach 5 and Mach 10 speeds. Such manned aircraft of very high performance are a necessity because unlike missiles, they have the capability of being launched on less than certain information and can be recalled if a warning of attack proves false. Very high performance manned aircraft will always be superior to missiles for surveillance for the simple reason that their crews can perform on-the-spot evaluations and maneuvers. These aircraft can also serve as highly mobile missile launching platforms.

The flight that failed over Russia's heartland is said to have been but one of numerous U-2 surveillance flights over Russia in recent years. Be this as it may, the U-2 was perfected for upper air research aircraft — not distance flying. Long-range, high-altitude, very elusive aircraft such as the advanced B-70 would provide even more remarkable accomplishments — with much greater chances for uninterrupted success. Full steam ahead for the B-70 is now essential.

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- Intercom
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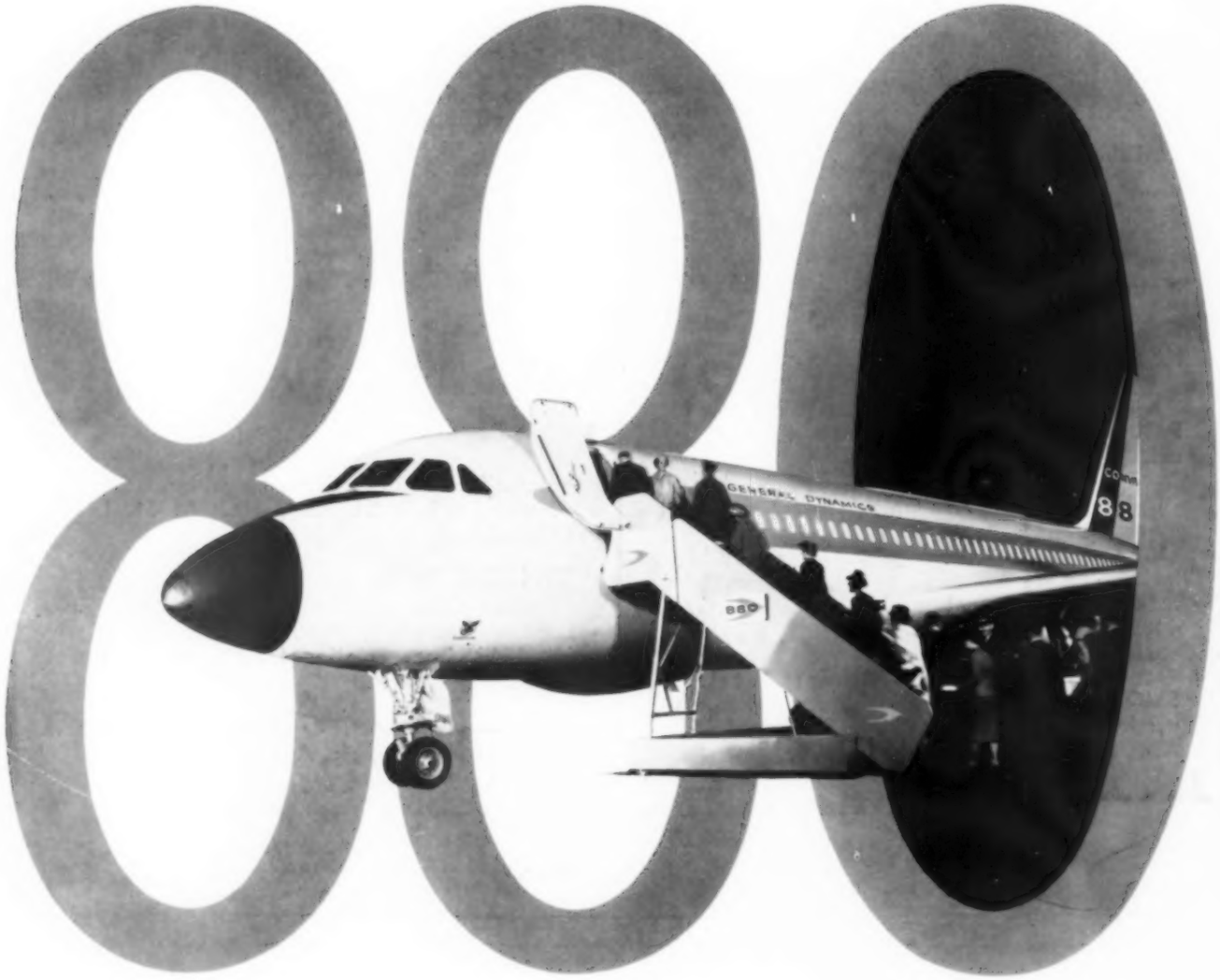

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